STIC Search Report
EIC 1700

STIC Database Tracking Number: 117164

TO: Raymond Alejandro **Location: REM 6B59** **Art Unit : 1745** **March 19, 2004** **Case Serial Number: 10/079003**	**From: Barba Koroma** **Location: EIC 1700** **REM EO4 A30** **Phone: 571 272 2546** **barba.koroma@uspto.gov**

Search Notes

Examiner Alejandro,
Please find attached results of the search you requested. Various components of the claimed invention as spelt out in the claims were searched in multiple databases.

For your convenience, titles of hits have been listed to help you peruse the results set quickly. This is followed by a detailed printout of records. Please let me know if you have any questions.
Thanks.

Access DB# 117164

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Raymond Alejandro Examiner #: 76895 Date: 03/17/04
Art Unit: 1745 Phone Number 30(571)272-1282 Serial Number: 10/079003
Mail Box and Bldg/Room Location: Remsen 6B59 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Galvanic Element having at least one lithium-intercalating electrode

Inventors (please provide full names): Haug et al

Earliest Priority Filing Date: 02/20/02

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please, see claims 1-11 (attached copy) for subject matter to be searched.

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable
Searcher:	NA Sequence (#)		STN
Searcher Phone #:	AA Sequence (#)		Dialog
Searcher Location:	Structure (#)		Questel/Orbit
Date Searcher Picked Up:	Bibliographic		Dr.Link
Date Completed:	Litigation		Lexis/Nexis
Searcher Prep & Review Time:	Fulltext		Sequence Systems
Clerical Prep Time:	Patent Family		WWW/Internet
Online Time:	Other		Other (specify)

PTO-1590 (8-01)

=> file reg
FILE 'REGISTRY' ENTERED AT 12:53:59 ON 19 MAR 2004

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 18 MAR 2004 HIGHEST RN 664965-23-5
DICTIONARY FILE UPDATES: 18 MAR 2004 HIGHEST RN 664965-23-5

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2004

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more
information enter HELP PROP at an arrow prompt in the file or refer
to the file summary sheet on the web at:
http://www.cas.org/ONLINE/DBSS/registryss.html

=> file caplus
FILE 'CAPLUS' ENTERED AT 12:54:04 ON 19 MAR 2004

FILE COVERS 1907 - 19 Mar 2004 VOL 140 ISS 13
FILE LAST UPDATED: 18 Mar 2004 (20040318/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> file wpix
FILE 'WPIX' ENTERED AT 12:54:09 ON 19 MAR 2004

FILE LAST UPDATED: 18 MAR 2004 <20040318/UP>
MOST RECENT DERWENT UPDATE: 200419 <200419/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> FOR A COPY OF THE DERWENT WORLD PATENTS INDEX STN USER GUIDE, PLEASE VISIT:
http://www.stn-international.de/training_center/patents/stn_guide.pdf <<<

>>> FOR DETAILS OF THE PATENTS COVERED IN CURRENT UPDATES, SEE http://thomsonderwent.com/coverage/latestupdates/ <<<

>>> FOR INFORMATION ON ALL DERWENT WORLD PATENTS INDEX USER GUIDES, PLEASE VISIT:
http://thomsonderwent.com/support/userguides/ <<<

>>> ADDITIONAL POLYMER INDEXING CODES WILL BE IMPLEMENTED FROM DERWENT UPDATE 200403.
THE TIME RANGE CODE WILL ALSO CHANGE FROM 018 TO 2004.
SDIS USING THE TIME RANGE CODE WILL NEED TO BE UPDATED.
FOR FURTHER DETAILS: http://thomsonderwent.com/chem/polymers/ <<<

=> d que
L5 137270 SEA FILE=CAPLUS ABB=ON PLU=ON GALVANIC(4A)(ELEMENT OR CELL) OR BATTER? OR DRY CELL OR ELECTROCHEMICAL(3A)CELL OR (LITHIUM OR LI)(5A)ELECTRODE?
L9 1 SEA FILE=REGISTRY ABB=ON PLU=ON 12597-68-1
L10 1 SEA FILE=REGISTRY ABB=ON PLU=ON 12190-79-3
L11 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-74-6
L12 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-69-9
L13 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-66-6
L14 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-62-2
L15 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-50-8
L16 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-48-4
L17 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-47-3
L18 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-36-0
L19 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-32-6
L20 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-31-5
L21 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-22-4
L22 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7440-02-0
L23 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-93-2
L24 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7439-89-6
L25 1 SEA FILE=REGISTRY ABB=ON PLU=ON 7429-90-5
L26 1 SEA FILE=REGISTRY ABB=ON PLU=ON 95-14-7
L27 42766 SEA FILE=CAPLUS ABB=ON PLU=ON L9
L28 3240 SEA FILE=CAPLUS ABB=ON PLU=ON L10
L29 38364 SEA FILE=CAPLUS ABB=ON PLU=ON L11
L30 46135 SEA FILE=CAPLUS ABB=ON PLU=ON L12
L31 261629 SEA FILE=CAPLUS ABB=ON PLU=ON L13
L32 79355 SEA FILE=CAPLUS ABB=ON PLU=ON L14
L33 456844 SEA FILE=CAPLUS ABB=ON PLU=ON L15

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L34      160103 SEA FILE=CAPLUS ABB=ON  PLU=ON  L16
L35      170356 SEA FILE=CAPLUS ABB=ON  PLU=ON  L17
L36       52454 SEA FILE=CAPLUS ABB=ON  PLU=ON  L18
L37      143156 SEA FILE=CAPLUS ABB=ON  PLU=ON  L19
L38       86192 SEA FILE=CAPLUS ABB=ON  PLU=ON  L20
L39      151275 SEA FILE=CAPLUS ABB=ON  PLU=ON  L21
L40      291614 SEA FILE=CAPLUS ABB=ON  PLU=ON  L22
L41       73666 SEA FILE=CAPLUS ABB=ON  PLU=ON  L23
L42      389924 SEA FILE=CAPLUS ABB=ON  PLU=ON  L24
L43      337182 SEA FILE=CAPLUS ABB=ON  PLU=ON  L25
L44        6728 SEA FILE=CAPLUS ABB=ON  PLU=ON  L26
L45       31055 SEA FILE=CAPLUS ABB=ON  PLU=ON  (L27 OR L28 OR L29 OR L30 OR
                L31 OR L32 OR L33 OR L34 OR L35 OR L36 OR L37 OR L38 OR L39 OR
                L40 OR L41 OR L42 OR L43 OR L44) AND L5
L46       82286 SEA FILE=CAPLUS ABB=ON  PLU=ON  L5 AND (CU OR COPPER OR
                ANTIMONY OR SB OR NI OR NICKEL OR INDIUM OR IN OR TIN OR SN OR
                SILVER OR AG OR LI OR LITHIUM OR VANADIUM OR V OR CR OR
                CHROMIUM OR BISMUTH OR BI OR ZINC OR ZN OR CO OR COBALT OR
                TITANIUM OR TI OR FE OR IRON)
L47       83328 SEA FILE=CAPLUS ABB=ON  PLU=ON  L45 OR L46
L48       31382 SEA FILE=CAPLUS ABB=ON  PLU=ON  L47 AND (LITHIUM OR LI) AND
                (ELECTRODE OR ANODE OR CATHODE)
L49        2273 SEA FILE=CAPLUS ABB=ON  PLU=ON  L48 AND ELECTRO?(4A)(DEPOSIT?
                OR PLAT? OR COAT?)
L50         204 SEA FILE=CAPLUS ABB=ON  PLU=ON  L49 AND (FOIL OR SHEET)
L51           7 SEA FILE=CAPLUS ABB=ON  PLU=ON  L50 AND CRYSTAL?
L52          23 SEA FILE=CAPLUS ABB=ON  PLU=ON  L50 AND LAMINAT?
L53       43015 SEA FILE=WPIX ABB=ON  PLU=ON  L5 AND (CU OR COPPER OR ANTIMONY
                OR SB OR NI OR NICKEL OR INDIUM OR IN OR TIN OR SN OR SILVER
                OR AG OR LI OR LITHIUM OR VANADIUM OR V OR CR OR CHROMIUM OR
                BISMUTH OR BI OR ZINC OR ZN OR CO OR COBALT OR TITANIUM OR TI
                OR FE OR IRON)
L54       14117 SEA FILE=WPIX ABB=ON  PLU=ON  L53 AND (LITHIUM OR LI) AND
                (ELECTRODE OR ANODE OR CATHODE)
L55        1590 SEA FILE=WPIX ABB=ON  PLU=ON  L54 AND ELECTRO?(4A)(DEPOSIT? OR
                PLAT? OR COAT?)
L56         249 SEA FILE=WPIX ABB=ON  PLU=ON  L55 AND (FOIL OR SHEET)
L57          13 SEA FILE=WPIX ABB=ON  PLU=ON  L56 AND INTERCALAT?
L58          41 SEA FILE=WPIX ABB=ON  PLU=ON  L56 AND LAMINAT?
L59           9 SEA FILE=WPIX ABB=ON  PLU=ON  L56 AND CRYSTAL?
L61          55 SEA FILE=WPIX ABB=ON  PLU=ON  (L57 OR L58 OR L59)
L62          41 SEA FILE=WPIX ABB=ON  PLU=ON  L61 AND LAMINAT?
L63           3 SEA FILE=WPIX ABB=ON  PLU=ON  L62 AND (CRYSTAL? OR INTERCALAT?)

L64          12 SEA FILE=CAPLUS ABB=ON  PLU=ON  L50 AND INTERCALAT?
L65          40 SEA FILE=CAPLUS ABB=ON  PLU=ON  L51 OR L52 OR L64
L66          41 SEA FILE=WPIX ABB=ON  PLU=ON  L62 OR L63
L69          78 DUP REM L65 L66 (3 DUPLICATES REMOVED)


=> d ti 1-78
YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, WPIX' - CONTINUE? (Y)/N:y


KOROMA  EIC1700
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L69 ANSWER 1 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Characteristics research on **electrodeposited Sn-Cu** alloy **anode** for **lithium** ion **battery**

L69 ANSWER 2 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
TI Modified **lithium** ion polymer **battery**

L69 ANSWER 3 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Method and apparatus for manufacturing secondary **battery**

L69 ANSWER 4 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary **battery** and method and apparatus for manufacture the **battery**

L69 ANSWER 5 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity

L69 ANSWER 6 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Interpenetrating network solid polymer electrolyte for **electrochemical cell**, comprises branched siloxane polymer(s), crosslinking agent(s), monofunctional monomeric compound(s), metal salt(s), and radical reaction initiator(s).

L69 ANSWER 7 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Negative **electrode** for **lithium** secondary **battery** comprises negative **electrode** material including silicon, conductive carbon material and binder resin to be alloyed with **lithium.**

L69 ANSWER 8 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Bipolar electrochemical **battery** comprises stack of at least two **electrochemical cells** electrically arranged in series and including negative and positive **electrodes**, separator, and two electrically conductive **laminations.**

L69 ANSWER 9 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Manufacturing method of **lithium** primary **battery** for calculator, involves sealing **laminated** polymeric **sheets** , each formed with chamber filled with **electrode** active material, along surrounding of chamber.

L69 ANSWER 10 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Laminated battery** e.g. rechargeable **lithium** -ion **battery** for motor vehicle, has multiple incisions formed on **sheet** junction portion of bag-shaped separator.

L69 ANSWER 11 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Manufacture of solid-electrolyte film used in **lithium** secondary

battery, involves coating polymer solution on base material, forming porous film, heat processing, peeling and impregnating with electrolyte liquid.

L69 ANSWER 12 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
TI **Galvanic element** with a **lithium intercalating electrode**

L69 ANSWER 13 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof

L69 ANSWER 14 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Nonaqueous electrolyte secondary **battery** and process for the preparation thereof

L69 ANSWER 15 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Manufacture of organic electronic device e.g light emitting diode, involves **depositing electronic** elements on exposed **electrode** of composite structure comprising adhesive-**coated** patterned release liner on **electrode.**

L69 ANSWER 16 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Spinel-type **lithium**-manganese secondary cell for secondary **battery** employed in e.g., motor-driven vehicle, has conductive positive **electrode** member made of aluminum alloy mixed with manganese.

L69 ANSWER 17 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Coin-shaped **lithium** ion secondary **battery.**

L69 ANSWER 18 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Non-aqueous electrolyte **battery** for electronic clock, has **lithium** alloy layer formed on positive **electrode** side of **lithium plate.**

L69 ANSWER 19 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Fold-up type **lithium** cell manufacturing method for mobile telephone, involves arranging active material **coated** edge portion of negative **electrode** overlapped with active material of positive **electrode.**

L69 ANSWER 20 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Production of a separator/**electrode** composite for **lithium batteries**, involves coating a polymer matrix containing finely dispersed electrochemically-active material directly onto a porous separator.

L69 ANSWER 21 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Coatings** for **electrochemical** applications

L69 ANSWER 22 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

TI Li3PO4:N/LiCoO2 coatings for thin film **batteries**

L69 ANSWER 23 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
TI **Lithium** thin film **lamination** technology on **electrode** to increase **battery** capacity

L69 ANSWER 24 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Cathode** and **anode** plates sandwiched between porous metal supports, their manufacture, and nonaqueous electrolyte secondary **battery** using them

L69 ANSWER 25 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary **lithium** ion **batteries** with high capacity and safety

L69 ANSWER 26 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Electrodes** for secondary **lithium batteries**, their manufacture, and secondary **batteries**

L69 ANSWER 27 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary **lithium battery** and its manufacture

L69 ANSWER 28 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Manufacture of **lithium** polymer **battery** involves repeated charging of **battery** under specified conditions for gas evolution, after which cladding seal is broken to eject gas, and re-sealing cladding.

L69 ANSWER 29 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Non-aqueous secondary **battery** used for motor vehicles, has separator having preset heat shrinking rate at specified temperature and has predetermined energy capacity and volume energy density.

L69 ANSWER 30 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** cell for portable device, has extraction part from **lamination sheet** of lead which is covered by synthetic rubber, so that **lamination sheet** along with bag-like edge part side of lead is provided externally.

L69 ANSWER 31 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** ion secondary **battery** consists of high boiling **electrolyte**, negative **plate** containing graphite group carbonaceous coated with amorphous coke, and positive **electrode.**

L69 ANSWER 32 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Secondary **battery** e.g. **lithium** secondary **battery** for electricity generation, has ion impermeable polymeric **sheet** having elastic deformation, placed between core surfaces of positive **electrode** and negative **plate.**

L69 ANSWER 33 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Flat **battery** has safety valve and heat welding resin

sheet having lower melting point provided at the sealing portion of outer cladding case.

L69 ANSWER 34 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Spiral **lithium** cell has **cathode** jar carrying spiral **electrode** provided with **lithium cathode** **sheet** at periphery press-contacting inner surface of jar with **anode** and sealant terminal boar connected through lead tab.

L69 ANSWER 35 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium battery** used as energy source, has electrically conductive coating of fluorinated polymer and mixture of fine carbon and carbon fibers, provided between **cathode** current collector and **cathode** active material.

L69 ANSWER 36 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Preparation and characterization of gold-codeposited LiMn2O4 **electrodes**

L69 ANSWER 37 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Coatings** for **electrochemical** applications

L69 ANSWER 38 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Electrically conductive, freestanding microporous polymer **sheet**

L69 ANSWER 39 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Sheet** type **battery** with structure for preventing short circuit between **cathode** terminal and **anode** terminal

L69 ANSWER 40 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Electrode** materials having increased surface conductivity

L69 ANSWER 41 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Terminal for **lithium** secondary **battery** of portable telephone, has brancing material connected with management material via hinge, so that it is movable along **lamination** direction of **plates** of **electrode laminate.**

L69 ANSWER 42 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** polymer secondary **battery** has **laminated sheet** with thermobonding resin film layer which **laminates electrode** group welded along outer side and adjoined with metallic **foil** weld.

L69 ANSWER 43 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Flat **battery** has **laminated sheets** sealed by heat welding and inserted into concave portion in outer cladding case.

L69 ANSWER 44 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** ion secondary **battery** for use in motor vehicles and electrically driven wheel chairs comprises cylindrical **electrode laminate** provided on metal container.

L69 ANSWER 45 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Laminar **battery** with coiled **electrodes** which has improved output as localized short circuits are prevented by bulge on part of **electrode.**

L69 ANSWER 46 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Solid electrolyte composition for **battery**, contains gelled mixture of matrix polymer, reactive monomer, organic solvent and alkali metal electrolyte salt.

L69 ANSWER 47 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Cathode** plates for secondary **lithium** ion **batteries** and **batteries** using them

L69 ANSWER 48 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Cathode** material for **lithium** secondary cells.

L69 ANSWER 49 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Outer cladding case of **lithium** polymer secondary **battery** - comprises **lamination sheet** and adhesive.

L69 ANSWER 50 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium foil lamination** method for manufacture of non-aqueous electrolyte secondary **batteries** - involves rolling and adhering heated **lithium foil** on surface of **electrode plate** of negative **electrode.**

L69 ANSWER 51 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary nonaqueous electrolyte **batteries**

L69 ANSWER 52 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Spiral-type **sheet electrodes** suitable for **lithium** secondary **battery anodes**

L69 ANSWER 53 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Non-aqueous electrolyte secondary **battery** - has **lithium foil laminated sheet** which is formed over **electrode** mixture on collector of **cathode** plate to form **cathode laminated** board.

L69 ANSWER 54 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium** secondary **battery** - includes **electrodes** having **coating** film comprising active material and binder containing denatured polyvinylidene fluoride group.

L69 ANSWER 55 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Batteries** and secondary **lithium batteries**

L69 ANSWER 56 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Nonaqueous electrolyte secondary **batteries** with current

collectors containing metal-coated resin **sheets**

L69 ANSWER 57 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Spiral type **lithium batteries** and their manufacture

L69 ANSWER 58 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Solid polymer electrolyte **batteries** with improved current collectors

L69 ANSWER 59 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Non-aqueous **electrode plate** for **electrolyte** secondary **battery** - includes composition of active material layer varying along thickness direction.

L69 ANSWER 60 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors, the **batteries** and supercapacitors containing the **electrodes**, and manufacture of the **electrodes**

L69 ANSWER 61 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Porous metallic **sheet battery electrode** substrate - in which the **sheet** is formed of intertwined metallic fibres.

L69 ANSWER 62 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Secondary nonaqueous **batteries**

L69 ANSWER 63 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Manufacture of **sheet**-like plate and **batteries** using this plate.

L69 ANSWER 64 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Plastics-supported metallic **foil** production - by vacuum metallisation and electroplating of resin film.

L69 ANSWER 65 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sealed planar **batteries**

L69 ANSWER 66 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Electrodeposition** of tantalum **coatings** on metallic substrates such as steel

L69 ANSWER 67 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Non-aqueous-electrolyte **battery** production - by **laminating** aluminium **foil** and separator **sheet** for **electrode** unit, and placing on **lithium** plate in **cathode** can NoAbstract Dwg 1/2.

L69 ANSWER 68 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Lithium**-manganese dioxide **batteries**

L69 ANSWER 69 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Lithium batteries** with laminar separators

L69 ANSWER 70 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Conductive compositions for electronic part **electrodes**

L69 ANSWER 71 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Protected **electrode** material and its forming

L69 ANSWER 72 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI Solid electrolyte **battery**

L69 ANSWER 73 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Compact **battery** powered appliance, e.g. calculator - has **lithium battery** cell made from leaves sealed inside plastic film conductor strips.

L69 ANSWER 74 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Lithium** solid electrolyte **battery**

L69 ANSWER 75 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI **Lithium electrode** - with **lithium coating** and pressed **lithium** pieces on collector.

L69 ANSWER 76 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
TI Solid electrolyte storage **battery** - has negative **electrode** activator of **lithium** (alloy) and **lithium** nitride electrolyte for increased discharge capacitance.

L69 ANSWER 77 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Cathode** for thin and **laminated batteries**

L69 ANSWER 78 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Electrocrystallization** of compact **deposits**

=> d all 1-78 l69
YOU HAVE REQUESTED DATA FROM FILE 'CAPLUS, WPIX' - CONTINUE? (Y)/N:y

L69 ANSWER 1 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2004:179576 CAPLUS
ED Entered STN: 05 Mar 2004
TI Characteristics research on **electrodeposited Sn-Cu** alloy **anode** for **lithium** ion **battery**
AU Pu, Wei-Hua; Ren, Jian-Guo; Wan, Chun-Rong; Du, Zhi-Ming
CS School of Mechano-Electronics Engineering, Beijing Institute of Technology, Beijing, 100081, Peop. Rep. China
SO Wuji Cailiao Xuebao (2004), 19(1), 86-92
CODEN: WCXUET; ISSN: 1000-324X
PB Kexue Chubanshe

DT Journal
LA Chinese
CC 52 (Electrochemical, Radiational, and Thermal Energy Technology)
AB A thin film of active **tin** that can reversibly react with **lithium** was **electrodeposited** onto a **copper foil** collector and employed as **anode** for **lithium** ion **battery** after a heat-treatment in argon atmospheric The anal. results of SEM (SEM), X-ray diffraction (XRD) and **electrochem.** tests of model **cells** show that the initial discharge specific capacity of the electrodeposited **tin electrode** is higher than that of the slurry-**coating**-**tin electrode.** They are 747mAh·g-1 and 442mAh·g-1 resp. The **electrode** surface structure, chemical composition, and **crystal** size are different before and after heat-treatment (e.g. **tin crystal** size: 102.4nm and 121.0nm, resp.). Despite of a lower initial discharge specific capacity (4.9mAh·g-1), the annealed **tin electrode** has a much higher initial coulomb efficiency (92%) and more excellent cycle performance (the capacity retention after 30 cycles: 58%) compared with no annealing **tin electrode.**

L69 ANSWER 2 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 1
AN 2003:154981 CAPLUS
DN 138:190736
ED Entered STN: 28 Feb 2003
TI Modified **lithium** ion polymer **battery**
IN Zhang, Guiping; Yu, Yongyang; Lee, Torng Jinn
PA Peop. Rep. China
SO U.S. Pat. Appl. Publ., 6 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01M004-62
ICS H01M004-50; H01M004-52; H01M010-40
NCL 429217000; 429317000; 429316000; 429231100; 429231300; 429223000; 429224000; 429231800; 429338000; 429342000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003039886	A1	20030227	US 2001-933838	20010822
PRAI	US 2001-933838		20010822		

AB A modified **lithium** ion polymer **battery**, comprises a pos. **electrode sheet** and a neg. **electrode sheet**, formed by blending a binder with pos. **electrode** powder and **coating** the resulting blend on a **copper foil** or an aluminum **foil** used as the collector, wherein the binder can be prepared from the following three components: (a) 0.1-95 wt% of polyvinylidene fluoride; (b) 0.1-90 wt% of a modified polyacrylates; and (c) 0.1-85 wt% of a modified polyethylene or polydienes; alone, or from any two or all of them in a proper ratio; and a

separation membrane, which is a nonporous polyalkylene oxide film or a film made by coating a blend of polyalkylene oxide and polyvinylidene fluoride, or a micro-porous polypropylene film, or a three-layered composite film of polypropylene/polyethylene/polypropylene; wherein the pos. and neg. **electrode sheets** are **laminated** with the separation membrane to form an overlap **sheet** or roll in an alternative and isolation manner; the pos. and neg. collectors are welded, resp.; and the whole **laminate** is assembled with an aluminum plastic membrane to form the **lithium** ion polymer **battery.**

ST **lithium** ion polymer **battery** modified

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(hard; modified **lithium** ion polymer **battery**)

IT Secondary **batteries**
(**lithium**; modified **lithium** ion polymer **battery**)

IT **Battery anodes**
Battery cathodes
Secondary **battery** separators
(modified **lithium** ion polymer **battery**)

IT Petroleum coke
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(modified **lithium** ion polymer **battery**)

IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(modified **lithium** ion polymer **battery**)

IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); USES (Uses)
(modified **lithium** ion polymer **battery**)

IT Alkadienes
RL: MOA (Modifier or additive use); USES (Uses)
(polymers; modified **lithium** ion polymer **battery**)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(mesocarbon microbeads; modified **lithium** ion polymer **battery**)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-71-4 616-38-6, Dimethyl carbonate 623-96-1, Dipropyl carbonate **7429-90-5**, Aluminum, uses **7440-50-8**, **Copper**, uses 7791-03-9, **Lithium** perchlorate 9003-07-0, Polypropylene 9011-14-7, Pmma 12031-65-1, **Lithium nickel** oxide linio2 12057-17-9, **Lithium** manganese oxide limn2o4 **12190-79-3**, **Cobalt lithium** oxide colio2 14283-07-9, **Lithium** tetrafluoroborate 18424-17-4, **Lithium** hexafluoroantimonate 21324-40-3, **Lithium** hexafluorophosphate 29935-35-1, **Lithium** hexafluoroarsenate 33454-82-9, **Lithium** triflate 52627-24-4, **Cobalt lithium** oxide 73506-93-1, Diethoxyethane 90076-65-6 135573-53-4, **Cobalt lithium nickel** oxide co0-1lini0-1o2
RL: DEV (Device component use); USES (Uses)

(modified **lithium** ion polymer **battery**)
IT 9002-88-4, Polyethylene 24937-79-9, Polyvinylidene fluoride
49717-87-5, 2-Propenoic acid, ion(1-), homopolymer, uses
RL: MOA (Modifier or additive use); USES (Uses)
(modified **lithium** ion polymer **battery**)
IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(natural; modified **lithium** ion polymer **battery**)

L69 ANSWER 3 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:154762 CAPLUS
DN 138:190728
ED Entered STN: 28 Feb 2003
TI Method and apparatus for manufacturing secondary **battery**
IN Kurimoto, Yasuo; Furuichi, Ryoichi
PA Toray Engineering Co., Ltd., Japan
SO PCT Int. Appl., 48 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM H01M010-40
ICS H01M004-02; H01M010-04; H01M004-66
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003017410	A1	20030227	WO 2002-JP7511	20020724
	W: CN, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	JP 2003059525	A2	20030228	JP 2001-242009	20010809
PRAI	JP 2001-242009	A	20010809		

AB The **battery** is prepared by using an apparatus, comprising a means for supplying **electrode** pair **sheets**, means for **coating** an **electrode** substance containing solution on both side of the **electrode** pair; a means for **coating** an **electrolyte**-insulator mixture on both side of the **electrode sheets**; a heating mechanism for fixing various substances **coated electrode sheets**, a separator supplying means for superposing a separator between the **cathode** and **anode sheets** with fixed **cathode** and **anode** substances, electrolyte-insulator mixts.; and a means for winding the **cathode** and **anode sheet** with the separator in a **laminated** state into a predetd. shape.
ST secondary **battery** manuf app
IT Secondary **batteries**
(method and apparatus for manufacture of secondary **lithium batteries** with coiled stack of electrolyte and insulator covered **electrodes**)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Matsushita Electric Industrial Co Ltd; JP 20016661 A 2001

(2) Sony Corp; WO 0013252 A 2000 CAPLUS
(3) Toray Industries Inc; JP 11-97067 A 1999 CAPLUS

L69 ANSWER 4 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:42603 CAPLUS
DN 138:92873
ED Entered STN: 17 Jan 2003
TI Secondary **battery** and method and apparatus for manufacture the **battery**
IN Kurimoto, Yasuo; Furuichi, Ryoichi
PA Toray Engineering Co., Ltd., Japan
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM H01M010-40
ICS H01M004-02; H01M010-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003005480	A1	20030116	WO 2002-JP6662	20020701
	W: CN, KR, US				
	RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
	JP 2003017111	A2	20030117	JP 2001-203285	20010704
PRAI	JP 2001-203285	A	20010704		

AB The **battery** has a coiled stack containing a **cathode** and an **anode**, where both **electrodes** are covered with a thermally hardened layer of an electrolyte-insulator mixture The **battery** is prepared by using an apparatus, having means continuously supplying **cathode** and **anode sheets**, means continuously applying an electrolyte-insulator mixture solution on the **electrode sheets**, heaters solidifying the mixture on the **electrode sheets**, and means **laminating** and winding the covered **electrode sheets.**
ST secondary **battery electrode electrolyte** insulator **coating laminating** winding app
IT Secondary **batteries**
(**lithium**; method and apparatus for manufacture of secondary **lithium batteries** with coiled stack of electrolyte and insulator covered **electrodes**)
RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Sony Corp; EP 1030397 A2 2000 CAPLUS
(2) Sony Corp; JP 2000243427 A 2000 CAPLUS
(3) Sony Corp; JP 2001135306 A 2001 CAPLUS

L69 ANSWER 5 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:260905 CAPLUS
DN 138:274102
ED Entered STN: 04 Apr 2003

TI Assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity

IN Kawamura, Kenji; Kitoh, Kenshin
PA NGK Insulators, Ltd., Japan

SO U.S. Pat. Appl. Publ., 18 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM H01M002-30
NCL 429181000; 429053000; 429175000; 429176000; 429129000; 429178000; 429174000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003064285	A1	20030403	US 2002-260746	20020930
JP 2003115285	A2	20030418	JP 2001-308095	20011003
EP 1300896	A1	20030409	EP 2002-22105	20021002

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK

PRAI JP 2001-308095 A 20011003

AB A **lithium** secondary **battery** is provided with an inner **electrode** body comprising a pos. **electrode plate** and a neg. **electrode plate** resp. made up of at least one metal **foil** wound or **laminated**; the inner **electrode** body being impregnated with a non-aqueous electrolyte, current collector members for leading a current out of this inner **electrode** body **battery** case with both ends left open; the **battery** case housing the inner **electrode** body, and two caps provided with internal terminals thereon; the caps being used to seal the inner **electrode** body at both open ends of the **battery.** By adopting such a configuration that pos. and neg. external terminals are placed on one end of a **battery** collectively, protrusions of the **battery** are so reduced that the collective coupling of **batteries** becomes easier.

ST **lithium** secondary **battery** assembled structure

IT Brazing
Caulking compositions
Electric vehicles
Rolling (metals)
Welding
(assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Joining
(blasting; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Casting process
(enveloped; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Adhesion, physical

(friction bonding; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Secondary **batteries**
(**lithium**; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Ethylene-propylene rubber
Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(packing with; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT **Copper** alloy, base
Nickel alloy, base
RL: DEV (Device component use); USES (Uses)
(assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT Aluminum alloy, base
RL: DEV (Device component use); USES (Uses)
(core; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT **7440-02-0**, **Nickel**, uses **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); USES (Uses)
(assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(core; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT 9010-79-1
RL: TEM (Technical or engineered material use); USES (Uses)
(ethylene-propylene rubber, packing with; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

IT 9002-88-4, Polyethylene 9003-07-0, Polypropylene
RL: TEM (Technical or engineered material use); USES (Uses)
(packing with; assembled structure of **lithium** secondary **batteries** with excellent space-saving characteristics and productivity)

L69 ANSWER 6 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2004-031851 [03] WPIX
CR 2004-059327 [06]
DNN N2004-025124 DNC C2004-010599
TI Interpenetrating network solid polymer electrolyte for **electrochemical cell**, comprises branched siloxane polymer(s), crosslinking agent(s), monofunctional monomeric compound(s), metal salt(s), and radical reaction initiator(s).

DC A28 A32 A85 L03 X16
IN AMINE, K; HYUNG, Y; OH, B; VISSERS, D R
PA (AMIN-I) AMINE K; (HYUN-I) HYUNG Y; (OHBB-I) OH B; (VISS-I) VISSERS D R
CYC 1
PI US 2003180624 A1 20030925 (200403)* 18p H01M010-40
ADT US 2003180624 A1 US 2002-104352 20020322
PRAI US 2002-104352 20020322
IC ICM H01M010-40
ICS H01M010-04
AB US2003180624 A UPAB: 20040123
NOVELTY - An interpenetrating network solid polymer electrolyte comprises branched siloxane polymer(s) having poly(alkylene oxide) branch as side chain, crosslinking agent(s), monofunctional monomeric compound(s) for controlling crosslinking density, metal salt(s), and radical reaction initiator(s).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:

(a) a method for preparing the interpenetrating network polymer electrolyte comprising dissolving **lithium** salt and radical initiator in branched siloxane polymer, mixing crosslinking agent(s) and monomeric compound with the resulting mixture, casting the resulting mixture into substrate, and placing the cast liquid film in over or heating medium for solidification;

(b) a **lithium** ion rechargeable cell comprising **lithium** metal to **lithium** alloy **anode**, solid polymer electrolyte, and metal oxide **cathode**; and

(c) a method for assembling a **lithium** rechargeable cell with solid polymer **electrolyte** comprising **coating** branched siloxane polymer into surfaces of porous supporter, **cathode laminate**, and **anode laminate**, curing the precursor solution to make solid polymer electrolyte, stacking each components including porous supporter, **cathode laminate**, and **anode laminate**, winding or folding the stacked components to prepare spiral wound cell or prismatic cell, and packaging the cell in metal can, plastic pouch, or **foil**-plastic **laminated** pouch.

USE - For **electrochemical cell**, e.g. **lithium** ion rechargeable cell (claimed).

ADVANTAGE - The invention provides an **electrochemical cell** having extremely high cycle life and electrochemical stability.

Dwg.0/10
FS CPI EPI
FA AB
MC CPI: A05-H01B; A06-A00E2; A12-E06; A12-E09; L03-E01C3
EPI: X16-B01F1; X16-J01A; X16-J08

L69 ANSWER 7 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-765946 [72] WPIX
DNN N2003-613496 DNC C2003-210386
TI Negative **electrode** for **lithium** secondary **battery** comprises negative **electrode** material including silicon, conductive carbon material and binder resin to be alloyed with

lithium.
DC A85 L03 X16
IN FUKUI, A; KUSUMOTO, Y; NAKAMURA, H
PA (SAOL) SANYO ELECTRIC CO LTD
CYC 2
PI US 2003148185 A1 20030807 (200372)* 14p H01M004-64
JP 2003203637 A 20030718 (200372) 12p H01M004-66
ADT US 2003148185 A1 US 2002-329571 20021227; JP 2003203637 A JP 2001-401286 20011228
PRAI JP 2001-401286 20011228
IC ICM H01M004-64; H01M004-66
ICS H01M004-02; H01M004-38; H01M004-58; H01M004-62; H01M010-40
AB US2003148185 A UPAB: 20031107
NOVELTY - A negative **electrode** (13) for **lithium** secondary **battery** comprises a negative **electrode** material to be alloyed with **lithium** and a negative **electrode** collector (13a) having the negative material. The negative **electrode** collector has a proportional limit of not less than 2 N/mm. The negative **electrode** material contains silicon, conductive carbon material and binder resin.
USE - **Lithium** secondary **battery** (claimed).
ADVANTAGE - Achieves excellent charge/discharge cycle performance by suppressing decrease in contact between the negative **electrode** material and the negative **electrode** collector resulting from the charging/discharging processes.
DESCRIPTION OF DRAWING(S) - The figure is a section of a **lithium** secondary **battery**.
Battery case 10
Laminate film 11
Positive **electrode** 12
Negative **electrode** 13
Negative **electrode** collector 13a
Dwg.2A/4
FS CPI EPI
FA AB; GI
MC CPI: A12-E06; L03-E01B5B
EPI: X16-E01C; X16-E01E; X16-E08A; X16-E09

L69 ANSWER 8 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-744651 [70] WPIX
CR 2003-415394 [39]
DNN N2003-596411 DNC C2003-204610
TI Bipolar electrochemical **battery** comprises stack of at least two **electrochemical cells** electrically arranged in series and including negative and positive **electrodes**, separator, and two electrically conductive **laminations**.
DC A85 L03 X16
IN KLEIN, M G; PLIVELICH, R; RALSTON, P
PA (KLEI-I) KLEIN M G; (PLIV-I) PLIVELICH R; (RALS-I) RALSTON P
CYC 1
PI US 2003138691 A1 20030724 (200370)* 19p H01M010-18
ADT US 2003138691 A1 Cont of US 2001-902871 20010711, US 2003-337816 20030106

FDT US 2003138691 A1 Cont of US 6503658
PRAI US 2001-902871 20010711; US 2003-337816 20030106
IC ICM H01M010-18
ICS H01M002-08; H01M004-52; H01M004-58; H01M004-62; H01M004-66
AB US2003138691 A UPAB: 20031030
NOVELTY - A bipolar electrochemical **battery** comprises a stack of at least two **electrochemical cells** electrically arranged in series. Each **electrochemical cell** comprises negative and positive **electrodes**, a separator, and first and second electrically conductive **laminations.** The **laminations** are sealed peripherally to form an enclosure including the **electrodes**, separator and electrolyte.

DETAILED DESCRIPTION - A bipolar electrochemical **battery** comprises a stack of at least two **electrochemical cells** electrically arranged in series, with the positive face of each cell contacting the negative face of an adjacent **cell.** Each **electrochemical cell** comprises a negative **electrode** (2), a positive **electrode** (3), a separator (4) between the **electrodes** and including an electrolyte, a first electrically conductive **lamination** (5) in electrical contact with the outer face of negative **electrode**, and a second electrically conductive **lamination** (6) in electrical contact with the outer face of positive **electrode.** Each conductive **lamination** includes an inner metal layer (7, 7a), and a polymeric outer layer (8, 8a) having perforation(s) (9, 9a) to expose the inner metal layer. The first and second **laminations** are sealed peripherally to each other to form an enclosure including the **electrodes**, separator, and electrolyte.

An INDEPENDENT CLAIM is also included for fabrication of bipolar electrochemical **battery** by providing a stack of at least two **electrochemical cells**, each comprising negative and positive **electrodes**, separator, and first and second electrically conductive **laminations**; and sealing the first and second **laminations** peripherally to each other to form an enclosure.

USE - For use as electrochemical **battery.**

ADVANTAGE - The inventive **battery** has high energy storage capacity, efficient **battery** performance, and long-term chemical and physical stability.

DESCRIPTION OF DRAWING(S) - The figure shows an overview of a wafer cell.

Negative **electrode** 2
Positive **electrode** 3
Separator 4
First conductive **lamination** 5
Second conductive **lamination** 6
Inner metal layers 7, 7a
Polymeric outer layers 8, 8a
Perforations 9, 9a

Dwg.1/10
FS CPI EPI
FA AB; GI

MC CPI: A11-C01C; A12-E06; L03-E01D3
EPI: X16-E01C1; X16-E01E; X16-E02; X16-E09; X16-F01A; X16-F06

L69 ANSWER 9 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-650994 [62] WPIX
DNC C2003-178595
TI Manufacturing method of **lithium** primary **battery** for calculator, involves sealing **laminated** polymeric **sheets**, each formed with chamber filled with **electrode** active material, along surrounding of chamber.
DC L03
PA (NITS) NGK SPARK PLUG CO LTD
CYC 1
PI JP 2003197208 A 20030711 (200362)* 14p H01M006-16
ADT JP 2003197208 A JP 2001-398052 20011227
PRAI JP 2001-398052 20011227
IC ICM H01M006-16
ICS H01M004-06
AB JP2003197208 A UPAB: 20030928
NOVELTY - The method involves **laminating** pair of polymeric **sheets** (1,3), each formed with chamber (2,4) filled with **electrode** active material (5,6), by interposing a separator (9) between them. A pair of **electrode plates** (7,8) are respectively arranged at outer sides of the **sheets**, to close the respective chambers. The **sheets** are sealed along the surrounding of the chamber.

DETAILED DESCRIPTION - The **electrode** active materials are filled in respective chambers, after fixing the **electrode plates** to the surfaces (1b,3b) of the **sheets**, using hot melt adhesive layer. The separator is fixed to the surfaces (1a,3a) of the **sheets**, after filling **electrode** active materials to the chambers, using hot melt adhesive layer. The sealing of both **laminated sheets**, along the surrounding of the chamber, is performed by ultrasonic welding process. The paste like **electrode** active material (6) is filled, by positioning a printing mask (15) having several filling openings, on the **sheet** to form pattern. A positioning frame (20) is provided to support the peripheral edge of the **sheets. Lithium** metal and manganese oxide are used as negative and positive **electrode** active materials, respectively.

USE - For manufacturing **lamination** type **lithium** primary **battery** for use in integrated chip card, card type calculator.

ADVANTAGE - Thin **battery** is easily and efficiently manufactured. Sealing performance is improved. The manufacturing process is simplified.

DESCRIPTION OF DRAWING(S) - The figure shows the sectional views of the **battery** manufacturing apparatus. (Drawing includes non-English language text).

polymeric **sheets** 1,3
surfaces 1a,1b,3a,3b
chambers 2,4

electrode active materials 5,6
electrode plates 7,8
separator 9
printing mask 15
positioning frame 20
Dwg.1/20
FS CPI
FA AB; GI
MC CPI: L03-E01A

L69 ANSWER 10 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-462384 [44] WPIX
DNN N2003-367905
TI **Laminated battery** e.g. rechargeable **lithium** -ion **battery** for motor vehicle, has multiple incisions formed on **sheet** junction portion of bag-shaped separator.
DC W01 X16 X21 X22
PA (NIDE) NEC CORP
CYC 1
PI JP 2003092100 A 20030328 (200344)* 11p H01M002-18
ADT JP 2003092100 A JP 2001-284812 20010919
PRAI JP 2001-284812 20010919
IC ICM H01M002-18
ICS H01M010-04
ICA H01M010-40
AB JP2003092100 A UPAB: 20030710
NOVELTY - A bag-shaped separator (13) formed by joining outer edge portions of a pair of separator **sheets**, accommodates a positive **electrode plate** (12). Multiple incisions (15) are formed along the **sheet** junction portion of bag shaped separator such that the incisions do not overlap with the positive **electrode plate.**
USE - **Laminated battery** e.g. rechargeable **lithium**-ion **battery** for electric vehicle, hybrid car, mobile telephone and motor vehicle.
ADVANTAGE - Prevents jumping out of **electrode plate** from bag-shaped separator and generation of wrinkle in bag-shaped separator at the time of joining separator **sheets.** Improves property of **laminated battery.**
DESCRIPTION OF DRAWING(S) - The figure shows the top view of the positive **electrode plate** of the **laminated battery.** (Drawing includes non-English language text).
positive **electrode plate** 12
bag-shaped separator 13
incision 15
Dwg.3/23
FS EPI
FA AB; GI
MC EPI: W01-C01D3C; W01-C01E5B; X16-B01F1; X16-F02; X21-A01D; X21-A01F; X21-B01A; X22-F01; X22-P04

L69 ANSWER 11 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2003-527515 [50] WPIX
DNN N2003-418726 DNC C2003-142435
TI Manufacture of solid-electrolyte film used in **lithium** secondary **battery**, involves coating polymer solution on base material, forming porous film, heat processing, peeling and impregnating with electrolyte liquid.
DC A85 L03 X16
PA (DAIE) MITSUBISHI CABLE IND LTD
CYC 1
PI JP 2003017124 A 20030117 (200350)* 8p H01M010-40
ADT JP 2003017124 A JP 2001-196619 20010628
PRAI JP 2001-196619 20010628
IC ICM H01M010-40
ICS C08J009-14
ICI C08L027:16
AB JP2003017124 A UPAB: 20030805
NOVELTY - The manufacture of the solid-**electrolyte** film involves **coating** a polymer solution containing fluorine polymer mainly having vinylidine fluoride, foaming agent and solvent on base material. A porous film is formed by vaporizing the foaming agent and solvent in polymer solution followed by peeling from base material, heat processing at 60 deg. C or more and impregnating with electrolyte liquid of **lithium** salt.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:
(1) solid electrolyte film; and
(2) **lithium** secondary **battery.**
USE - For **lithium** secondary **batteries** (claimed), as **sheet**-like **battery** cover, **laminate** film for metal cans such as cylindrical can, prismatic-tube can and button-like can.
ADVANTAGE - The **lithium** secondary **battery** using the solid electrolyte film has reduced surface wrinkles on the **electrode** surface, improved **battery** properties such as cycle property, low temperature property and increased internal resistance. The process film provides excellent thermal stability and solvent resistance to the solid-electrolyte film.
Dwg.0/0
FS CPI EPI
FA AB
MC CPI: A04-E10B; A08-B01; A08-S02; A11-B05D; A11-B06A; A11-B06D; A12-E06; L03-E01C2; L03-E01C3
EPI: X16-B01F; X16-J01A; X16-J08

L69 ANSWER 12 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 2
AN 2002:656107 CAPLUS
DN 137:203949
ED Entered STN: 30 Aug 2002
TI **Galvanic element** with a **lithium intercalating electrode**
IN Haug, Peter; Birke, Peter; Holl, Konrad; Ilic, Dejan
PA Microbatterie GmbH, Germany; Varta Microbattery GmbH

SO Eur. Pat. Appl., 6 pp.
CODEN: EPXXDW
DT Patent
LA German
IC ICM H01M004-02
ICS H01M004-66
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1235286	A2	20020828	EP 2002-1556	20020123
	EP 1235286	A3	20040303		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
	DE 10108695	A1	20020905	DE 2001-10108695	20010223
	US 2002119376	A1	20020829	US 2002-79003	20020220
	JP 2002304998	A2	20021018	JP 2002-43644	20020220
	CN 1372342	A	20021002	CN 2002-105123	20020222
PRAI	DE 2001-10108695	A	20010223		

AB This **galvanic element** has a **lithium intercalating electrode** with electrochem. active material on a **foil**-like metallic conductor. The conductor is **coated** with **electrochem. deposited crystals** of another metal or of the same metal as the conductor. This coating increases the contact area and reduces the transition resistance of the active material. The metal support may be Al, **Cu**, **V**, **Ti**, **Cr**, **Fe**, **Ni**, **Co**, alloys of these metals, or a stainless steel. The deposited metal may be **Cu**, **V**, **Ti**, **Cr**, **Fe**, **Ni**, **Co**, **Zn**, **Sn**, In, **Sb**, **Bi**, **Ag** or alloys of these metals. The **crystal** size of the **electrochem. deposited** material is 1-10 μm and there is preferably only 3 deposited **crystalline** layers.

ST **battery anode cathode lithium intercalating electrode** metal **crystallite**

IT **Battery anodes**
Battery cathodes
Electric capacitance
Film **electrodes**
Grain size
Laminated materials
(**galvanic element** with a **lithium intercalating electrode**)

IT Alloys, uses
Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(**galvanic element** with a **lithium intercalating electrode**)

IT Chromating
(treatment of **electrode**; **galvanic element** with a **lithium intercalating electrode**)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); USES (Uses)
(MCMB or KS 6; **galvanic element** with a **lithium intercalating electrode**)
IT 9011-17-0, Powerflex
RL: DEV (Device component use); USES (Uses)
(Powerflex; **galvanic element** with a **lithium intercalating electrode**)
IT 7440-44-0, Super P, uses
RL: DEV (Device component use); USES (Uses)
(activated; **galvanic element** with a **lithium intercalating electrode**)
IT **95-14-7**, 1H-Benzotriazole
RL: DEV (Device component use); USES (Uses)
(**electrode coating**; **galvanic element** with a **lithium intercalating electrode**)
IT 84-74-2, Dibutyl phthalate **7429-90-5**, Aluminum, uses **7439-89-6**, **Iron**, uses **7439-93-2**, **Lithium**, uses **7440-02-0**, **Nickel**, uses **7440-22-4**, **Silver**, uses **7440-31-5**, **Tin**, uses **7440-32-6**, **Titanium**, uses **7440-36-0**, **Antimony**, uses **7440-47-3**, **Chromium**, uses **7440-48-4**, **Cobalt**, uses **7440-50-8**, **Copper**, uses **7440-62-2**, **Vanadium**, uses **7440-66-6**, **Zinc**, uses **7440-69-9**, **Bismuth**, uses **7440-74-6**, **Indium**, uses **12190-79-3**, **Cobalt lithium** oxide(CoLiO2) **12597-68-1**, Stainless steel, uses 25038-59-9, Mylar, uses
RL: DEV (Device component use); USES (Uses)
(**galvanic element** with a **lithium intercalating electrode**)

L69 ANSWER 13 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:812221 CAPLUS
DN 137:339974
ED Entered STN: 25 Oct 2002
TI Composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof
IN Ishikawa, Naomoto
PA Mitsubishi Heavy Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M010-40
ICS H01M004-02; H01M004-04; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 72, 76
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI JP 2002313427 A2 20021025 JP 2001-118213 20010417
PRAI JP 2001-118213 20010417

AB The title manufacturing involves (1) masking with isocyanate groups to cancel the reactivity of an active metal oxide in a polyaniline/polymer solid electrolyte polymer precursor solution and mixing the solution with an isocyanate compound to give a paste, (2) coating the paste on a collector, (3) heating at a temperature below the dissociation temperature of the blocking agent to give an **anode**, (4) mixing an electrolyte with an organic solvent, a polymer solid electrolyte precursor, and the isocyanate compound to give a polymer electrolyte **sheet**, and (5) **laminating** the polymer electrolyte **sheet** to the **anode** and annealing the **laminate** at a temperature to react the dissociated active isocyanate and unreacted polyethylene glycol. The process makes the manufacture of the **electrodes** easier and the polymer solid electrolyte interface-resistance decreased.

ST polyaniline isocyanate masking polymer solid electrolyte

IT Annealing
Polymer electrolytes
(composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT Polyoxyalkylenes, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT **Battery electrodes**
(composites; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT Polyanilines
RL: PRP (Properties)
(conductor solution; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT Electric resistance
(interface, for solid electrolyte/**electrode**; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT Functional groups
(isocyanato group, triple-functional, electrolyte paste; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT Secondary **batteries**
(**lithium**; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT **Coating** materials
(masking; composite **electroless** for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT **Coating** materials
(polymer **electrolyte** paste; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT Oxides (inorganic), uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PYP (Physical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(reactive, masking of; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 13453-79-7
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(active reagent; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 108-95-2D, Phenol, compds.
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(blocking agent; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 25322-68-3, Polyethylene glycol
RL: RCT (Reactant); RACT (Reactant or reagent)
(composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

IT 7791-03-9, **Lithium** perchlorate (LiClO4)
RL: DEV (Device component use); MOA (Modifier or additive use); PRP (Properties); USES (Uses)
(electrolyte; composite electroless for **lithium** secondary **batteries** and manufacturing **electrodes** thereof)

L69 ANSWER 14 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:31174 CAPLUS
DN 136:72349
ED Entered STN: 11 Jan 2002
TI Nonaqueous electrolyte secondary **battery** and process for the preparation thereof
IN Okada, Mikio
PA Japan Storage Battery Company Limited, Japan
SO Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM H01M010-40
ICS H01M004-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1170816	A2	20020109	EP 2001-116484	20010706
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002237293	A2	20020823	JP 2001-194644	20010627
	CN 1332484	A	20020123	CN 2001-120039	20010706
	US 2002018935	A1	20020214	US 2001-899208	20010706
PRAI	JP 2000-205502	A	20000706		
	JP 2000-373857	A	20001208		

AB In accordance with the nonaq. electrolyte secondary **battery** of the invention and the process for the preparation thereof, charging is carried

out with a combination of a pos. **electrode** provided with excess **lithium** and a neg. **electrode** in order to cause **lithium** to be **deposited** on the neg. **electrode.** Accordingly, no oxidized surface film is interposed between **lithium** and the current collector of neg. **electrode** or the neg. active material layer as in the case where a metallic **lithium foil** is **laminated** on the neg. **electrode.** In this arrangement, a **battery** having a small internal resistance can be provided. Since the deposition of **lithium** is conducted in the assembled **battery**, **lithium** does not come in contact with air, preventing the formation of a thick ununiform oxidized film on the surface thereof. Thus, the deposition of dendrite can be inhibited, making it possible to inhibit the drop of **battery** capacity and hence provide a **battery** having an excellent cycle life performance. Further, **lithium** can be retained on the neg. **electrode** in an amount excess to the capacity of the pos. **electrode.** Accordingly, even when **lithium** is lost due to the deposition of dendrite or the reaction with the electrolyte solution, the drop of **battery** capacity can be inhibited because the neg. **electrode** is provided with excess **lithium.**

ST **lithium** nonaq electrolyte secondary **battery** fabrication

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; process for fabrication of nonaq. electrolyte secondary **battery**)

IT Secondary **batteries**
(**lithium**; process for fabrication of nonaq. electrolyte secondary **battery**)

IT Polymer electrolytes
(process for fabrication of nonaq. electrolyte secondary **battery**)

IT Carbon black, uses
RL: MOA (Modifier or additive use); USES (Uses)
(process for fabrication of nonaq. electrolyte secondary **battery**)

IT 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(binder; process for fabrication of nonaq. electrolyte secondary **battery**)

IT 96-49-1, Ethylene carbonate 110-71-4 **7429-90-5**, Aluminum, uses **7439-93-2**, **Lithium**, uses **7440-50-8**, **Copper**, uses 7782-42-5, Graphite, uses 9002-88-4, Polyethylene 11115-92-7, **Iron** hydroxide oxide 12031-65-1, **Lithium** **nickel** oxide linio2 12325-84-7, **Lithium nickel** oxide Li2NiO2 21324-40-3, **Lithium** hexafluorophosphate 39300-70-4, **Lithium nickel** oxide 52627-24-4, **Cobalt lithium** oxide 169199-66-0, **Lithium** **nickel** oxide Li1.2NiO2 314020-48-9, **Lithium** **nickel** oxide Li1.4NiO2 384818-48-8, **Lithium** **nickel** oxide (Li1.6NiO2) 384818-49-9, **Lithium**

nickel oxide (Li1.8NiO2)
RL: DEV (Device component use); USES (Uses)
(process for fabrication of nonaq. electrolyte secondary **battery**)
IT 145826-81-9
RL: MOA (Modifier or additive use); USES (Uses)
(process for fabrication of nonaq. electrolyte secondary **battery**)

L69 ANSWER 15 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-280557 [32] WPIX
DNN N2002-219146 DNC C2002-082489
TI Manufacture of organic electronic device e.g light emitting diode, involves **depositing electronic** elements on exposed **electrode** of composite structure comprising adhesive-**coated** patterned release liner on **electrode.**
DC A85 L03 U12 X26
IN BAUDE, P F; MCCORMICK, F B; VERNSTROM, G D
PA (MINN) 3M INNOVATIVE PROPERTIES CO
CYC 94
PI WO 2002005361 A1 20020117 (200232)* EN 33p H01L051-20
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
AU 2001025741 A 20020121 (200234) H01L051-20
EP 1299913 A1 20030409 (200325) EN H01L051-20
R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR
KR 2003031116 A 20030418 (200353) H05B033-10
JP 2004503066 W 20040129 (200413) 49p H05B033-04
ADT WO 2002005361 A1 WO 2000-US31393 20001115; AU 2001025741 A AU 2001-25741 20001115; EP 1299913 A1 EP 2000-989200 20001115, WO 2000-US31393 20001115; KR 2003031116 A KR 2003-700344 20030110; JP 2004503066 W WO 2000-US31393 20001115, JP 2002-509116 20001115
FDT AU 2001025741 A Based on WO 2002005361; EP 1299913 A1 Based on WO 2002005361; JP 2004503066 W Based on WO 2002005361
PRAI US 2000-614993 20000712
IC ICM H01L051-20; H05B033-04; H05B033-10
ICS C09K011-06; H01L051-40; H05B033-14
AB WO 200205361 A UPAB: 20020521
NOVELTY - Adhesive-coated side of a patterned release liner is **laminated** on an **electrode** substrate to form a composite structure (S) having at least a portion of exposed **electrode.** Organic **electronic** elements are **deposited** on exposed **electrode** of the structure (S). The liner is removed from structure (S) and a sealing layer is adhered to exposed adhesive of structure (S), to manufacture organic electronic device.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for article comprising an organic electronic device which has layers between

anode and **cathode** surrounded by an adhesive layer. The circumference of the adhesive layer is equal to that of one or both of the **electrode** substrate or sealing layer.

USE - For manufacture of an organic electronic device e.g. organic light emitting diodes.

ADVANTAGE - Robust encapsulated organic electronic devices in situ edge sealed and having structural integrity and high life time is manufactured continuously. The organic electronic device is manufactured without exposure to the atmosphere at any time during the process by conducting the deposition steps in vacuum. Because the organic electronic device is not exposed to the atmosphere during manufacture, air and water sensitive materials can be used in the organic electronic device. The organic electronic device can easily made in any desired shape and continuously in a roll-to-roll process and can be made on a flexible substrate.

DESCRIPTION OF DRAWING(S) - The drawing shows the drawing of the substrate with adhesive coated liner mask.

substrate 12

patterned adhesive 14

release liner 15

Dwg.1/12

FS CPI EPI

FA AB; GI

MC CPI: A11-B09A2; A11-C01C; A12-E01; A12-E11A; L04-C20A; L04-E03A
EPI: U12-A01A1X; U12-A01A2; U12-B03C; X26-H

L69 ANSWER 16 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2002-414814 [44] WPIX

DNN N2002-326217 DNC C2002-117122

TI Spinel-type **lithium**-manganese secondary cell for secondary **battery** employed in e.g., motor-driven vehicle, has conductive positive **electrode** member made of aluminum alloy mixed with manganese.

DC L03 Q13 Q14 X16 X21

IN SUZUKI, H; WATANABE, H

PA (NIDE) NEC CORP; (NIDE) NEC TOKIN CORP

CYC 4

PI US 2002045092 A1 20020418 (200244)* 13p H01M002-02
JP 2002117906 A 20020419 (200244) 9p H01M010-40
CN 1348228 A 20020508 (200253) H01M010-36
US 6558834 B2 20030506 (200338) H01M002-30
TW 540180 A 20030701 (200379) H01M004-40

ADT US 2002045092 A1 US 2001-967120 20010928; JP 2002117906 A JP 2000-307776 20001006; CN 1348228 A CN 2001-142293 20010927; US 6558834 B2 US 2001-967120 20010928; TW 540180 A TW 2001-122336 20010910

PRAI JP 2000-307776 20001006

IC ICM H01M002-02; H01M002-30; H01M004-40; H01M010-36; H01M010-40
ICS B60K001-04; B60K006-02; B60L011-18; H01M002-06; H01M002-08; H01M002-20; H01M002-32; H01M004-66

AB US2002045092 A UPAB: 20020711
NOVELTY - A spinel-type **lithium**-manganese secondary cell includes a conductive **anode** member mounted in a through hole of

a conductive cell casing by an insulating assembly. The conductive positive **electrode** member is made of an aluminum alloy mixed with manganese.

DETAILED DESCRIPTION - A spinel-type **lithium**-manganese (LiMn) secondary cell comprises a conductive cell casing (101) having a through hole (105) defined in one of its ends. An **electrode** unit (102) having a positive **electrode sheet** and a negative **electrode sheet** is impregnated with a non aqueous electrolytic solution between the **sheets** and is housed in the cell casing. The positive **electrode sheet** is **coated** on its surfaces with a powdery positive **electrode** active material. The **cathode sheet** is coated on its surfaces with a powdery **cathode** active material. The positive and negative **electrode sheets** are **laminated** together with a separator **sheet** interposed between them, and wound into a cylindrical column. A conductive **anode** member (201) is mounted in the through hole by an insulating assembly (202). **Anode** tabs (107) connect the positive **electrode sheet** at an opposite end of the **electrode** unit to the positive **electrode** member. **Cathode** tabs connect the **cathode sheet** at an opposite end of the **electrode** unit to the cell casing. The **anode sheet** is mainly made of aluminum. The powdery **anode** active material includes **lithium** and manganese as indispensable constituent. The conductive **anode** member is made of an aluminum alloy mixed with manganese.

INDEPENDENT CLAIMS are included for the following:

(a) a method of manufacturing the inventive spinel-type LiMn secondary cell;and

(b) a motor-driven mobile vehicle comprising the inventive spinel-type LiMn secondary cell, a **cathode** terminal held against and electrically connected to the cell casing of the LiMn secondary cell, a positive **electrode** terminal engaging and electrically connected to a bolt (203) of the LiMn secondary cell, a nut (204) tightening the **anode** terminal to the bolt, an electric motor energizable by electric energy supplied from the **anode** and **cathode** terminals, a vehicle body supporting at least the electric motor and the LiMn secondary cell, and a moving mechanism for moving the vehicle body with power produced by the electric motor.

USE - For use in secondary **batteries** employed in e.g., motor-driven vehicles.

ADVANTAGE - The spinel-type **lithium**-manganese secondary cell has an **anode** member with an increased mechanical strength. Since manganese mixed with the aluminum alloy of the **anode** member is an indispensable constituent of the **anode** active material, it does not cause unwanted chemical reaction e.g. electrolytic corrosion.

DESCRIPTION OF DRAWING(S) - The figure shows a vertical cross-section view of an internal structure of the **lithium**-manganese secondary cell.

conductive cell casing 101

electrode unit 102

through hole 105
anode tabs 107
conductive positive **electrode** member 201
insulating assembly 202
bolt 203
nut 204
soft closing members 205, 206
strong retaining members 207, 208
Dwg.3/7
FS CPI EPI GMPI
FA AB; GI
MC CPI: L03-E01B5; L03-H05
EPI: X16-E01C; X16-E02; X16-F01; X16-F01A; X21-A01F; X21-B01A

L69 ANSWER 17 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-236874 [23] WPIX
DNC C2003-060462
TI Coin-shaped **lithium** ion secondary **battery.**
DC A85 L03 X16
IN KIM, Y D; LEE, Y M; YOON, H G
PA (KOPO-N) KOREA POWERCELL INC
CYC 1
PI KR 2002088469 A 20021129 (200323)* 1p H01M010-36
KR 393484 B 20030806 (200412) H01M010-36
ADT KR 2002088469 A KR 2001-26935 20010517; KR 393484 B KR 2001-26935 20010517
FDT KR 393484 B Previous Publ. KR 2002088469
PRAI KR 2001-26935 20010517
IC ICM H01M010-36
AB KR2002088469 A UPAB: 20030407
NOVELTY - A coin-shaped **lithium** ion secondary **battery** is provided, to reduce the contact resistance by increasing the contact area of an **electrode** and a terminal and to improve the sealing property by joining a can and a cap by the mechanical joining method using a polymer resin.
DETAILED DESCRIPTION - The coin-shaped **lithium** ion secondary **battery** comprises a plurality of pocketing **electrode** bodies; a plurality of secondary **electrode plates** which are **laminated** alternately with the each pocketing **electrode** body; a metal can(10) which receives the **laminated** body consisting of the pocketing **electrode** bodies and the secondary **electrode plates**; a metal cap(20); and an electrolyte solution injected into the **laminated** body.
The can(10) and the cap(20) are electrically insulated each other by a gasket(30). The can(10) is connected with a metal **foil**(320) surrounding the projected part of negative **electrode plates**, and the cap(20) is connected with the metal **foil** (310) surrounding the projected part of positive **electrode plates**, wherein the can(10) and the cap(20) act as a terminal.
Dwg.1/10
FS CPI EPI
FA AB; GI

MC CPI: A12-E06C; L03-E01D1
EPI: X16-B01F1; X16-F01F1

L69 ANSWER 18 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-744914 [81] WPIX
DNN N2002-586838
TI Non-aqueous electrolyte **battery** for electronic clock, has **lithium** alloy layer formed on positive **electrode** side of **lithium plate.**
DC X16
PA (HITM) HITACHI MAXELL KK
CYC 1
PI JP 2002246014 A 20020830 (200281)* 8p H01M004-06
ADT JP 2002246014 A JP 2001-373600 20011207
PRAI JP 2000-375440 20001211
IC ICM H01M004-06
ICS H01M004-02; H01M004-04; H01M004-12; H01M004-40; H01M006-16; H01M010-40
AB JP2002246014 A UPAB: 20021216
NOVELTY - A **lithium** alloy layer is formed on the positive **electrode** side of a **lithium plate** (20). An aluminum **foil** (21) is **laminated** on the negative **electrode** side of the **lithium plate.**
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for non-aqueous electrolyte **battery** manufacturing method.
USE - Non-aqueous electrolyte **battery** for electronic clock, memory backup, etc.
ADVANTAGE - Prevents the generation of punching dregs in **lithium** plate.
DESCRIPTION OF DRAWING(S) - The figure shows the top view of the metallic **foil laminated** on the **lithium** plate. (Drawing includes non-English language text).
Lithium plate 20
Aluminum **foil** 21
Dwg.5/9
FS EPI
FA AB; GI
MC EPI: X16-A02; X16-B01F; X16-E01; X16-E01C; X16-E01G; X16-E03

L69 ANSWER 19 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-647516 [70] WPIX
DNN N2002-512197
TI Fold-up type **lithium** cell manufacturing method for mobile telephone, involves arranging active material **coated** edge portion of negative **electrode** overlapped with active material of positive **electrode.**
DC T01 W01 X16
PA (DAIE) MITSUBISHI CABLE IND LTD
CYC 1
PI JP 2002157997 A 20020531 (200270)* 9p H01M004-04
ADT JP 2002157997 A JP 2000-350021 20001116
PRAI JP 2000-350021 20001116

IC ICM H01M004-04
ICS H01M002-26; H01M002-30; H01M010-40

AB JP2002157997 A UPAB: 20021031
NOVELTY - A strip-shaped non-coated portion (7) is provided on both sides of negative plate (1). The strip-shaped non-coated portion (8) of positive plate (2) broader than strip-shaped non-coated portion (7) is **laminated** through adhesive so that the active material coating edge portion of the negative plate overlaps with active material non-coated portion of positive plate.
USE - For portable electronic devices such as mobile telephone, notebook computer.
ADVANTAGE - As there is no need for piercing and piling up each **electrode sheet** on small piece, handling property of the process is improved. As **electrode sheet** are folded along strip-shaped non-coated portion, bending processing is performed easily and deletion of active material by bending is inhibited thereby product yield of **battery** is improved. Generation of dendrite is inhibited thereby improving the charging and discharging cycle characteristics of **battery.**
DESCRIPTION OF DRAWING(S) - The figure shows the top view of **battery.** (Drawing includes non-English language text).
Negative plate 1
Positive plate 2
Strip-shaped non-coated portions 7,8
Dwg.3/14

FS EPI
FA AB; GI
MC EPI: T01-M06A1; W01-C01D3C; W01-C01E5B; X16-B01F; X16-E01G; X16-F03

L69 ANSWER 20 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2003-250080 [25] WPIX
DNN N2003-198577 DNC C2003-064853
TI Production of a separator/**electrode** composite for **lithium batteries**, involves coating a polymer matrix containing finely dispersed electrochemically-active material directly onto a porous separator.
DC A14 A85 L03 P42 X16
IN BIRKE, P; BIRKE-SALAM, F; HOLL, K; ILIC, D; JOAS, A; STELZIG, H
PA (MICR-N) MICRO CELL AG; (MICR-N) MICROBATTERIE GMBH
CYC 30

PI	EP 1261046 A1 20021127 (200325)* DE	7p	H01M002-16	
	R: AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR			
	DE 10125619 A1 20021205 (200325)		H01M010-38	
	JP 2003022800 A 20030124 (200325)	5p	H01M004-04	
	KR 2002090117 A 20021130 (200325)		H01M010-38	
	US 2002177037 A1 20021128 (200325)		H01M004-58	
	CN 1388606 A 20030101 (200328)		H01M010-38	

ADT EP 1261046 A1 EP 2002-9822 20020502; DE 10125619 A1 DE 2001-10125619 20010525; JP 2003022800 A JP 2002-150999 20020524; KR 2002090117 A KR 2002-25433 20020509; US 2002177037 A1 US 2002-152954 20020521; CN 1388606 A CN 2002-120194 20020524

PRAI DE 2001-10125619 20010525
IC ICM H01M002-16; H01M004-04; H01M004-58; H01M010-38
ICS B05D005-12; H01M004-02; H01M004-38; H01M004-50; H01M004-62; H01M010-40
AB EP 1261046 A UPAB: 20030416
NOVELTY - A method for the production of a separator/**electrode** composite for **galvanic elements** containing **lithium-intercalating electrode**(s) with electrochemically-active materials finely dispersed in a polymer matrix involves coating the active material-containing polymer matrix directly onto the porous separator or onto a layer of solid ionic conductor.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for **galvanic elements** with **electrode**/separator composite(s) obtained by this method.
USE - In thin-layer cells, especially e.g. **lithium** ion **batteries.**
ADVANTAGE - A simple method for the production of separator/**electrode** composites which can be carried out under any atmosphere with a wide range of **electrode** materials.
DESCRIPTION OF DRAWING(S) - Voltage/capacity curve for a flat cell **lithium battery** containing a separator/**electrode** composite as described.
voltage U
standardized capacity CN
curve for test cell 1
curve for a button cell made by the standard industrial method 2
Dwg.1/1
FS CPI EPI GMPI
FA AB; GI
MC CPI: A12-E06A; A12-E06B; L03-E01A; L03-E01B5B
EPI: X16-E01C; X16-E08A; X16-F02

L69 ANSWER 21 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:759860 CAPLUS
DN 138:92738
ED Entered STN: 07 Oct 2002
TI **Coatings** for **electrochemical** applications
AU Despotopoulou, Marina; Burchill, Michael T.
CS ATOFINA Chemicals Inc., King of Prussia, PA, 19406, USA
SO Progress in Organic Coatings (2002), 45(2-3), 119-126
CODEN: POGCAT; ISSN: 0300-9440
PB Elsevier Science B.V.
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76
AB The **anode** and **cathode** of **lithium** ion **batteries** are typically cast onto metal current collectors as a formulated **coating** containing the **electrochem.** active ingredients and polyvinylidene fluoride (PVDF) as the binder [Proceedings of the Fourth International **Batteries** 2001 Symposium, Paris, France, Apr. 2001]. Addnl., PVDF is used in the production of gel

electrolytes for polymer **Li** ion **batteries** [Solid State Ionics 86(1996) 49]. With the knowledge generated in the labs., new resins were specifically designed to offer improved performance. **Anodes** for **Li** ion **batteries** were fabricated by mixing MCMB graphite in a solution of poly(vinylidene fluoride) PVDF in N-methylpyrrolidone in a ball mill. A clean **Cu foil** was coated with the dispersion and placed in an oven to dry at 150° for 30 min. The adhesion of PVDF coating on **Cu** was measured by peeling strength tests and optimum graphite concentration was determined as 5 g PVDF for 10 g graphite, to attain conductivity suitable for **battery** use. The **coated electrodes** were subjected to pressing/ **lamination** prior to final assembly into **batteries** to minimize voids. Gel separators were fabricated using microporous PVDF films with di-Bu phthalate as plasticizer with electrolyte of LiPF6 in ethylene carbonate/propylene carbonate. The gel electrolyte was enclosed in a button-cell with stainless steel **electrodes** and the complex impedance and resistance of the electrolyte were measured. The swelling and aging of the gel electrolyte were also studied.

ST **coating electrochem**; polyvinylidene fluoride graphite slurry **coating copper electrode**; elec cond adhesion PVDF graphite **coating copper electrode**; gel electrolyte PVDF **lithium** hexafluorophosphate cond swelling aging; **lithium battery electrode** electrolyte PVDF based component

IT Fluoropolymers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(Kynar, complex with mesophase carbon microbeads, **anode coating**; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT Adhesion, physical
Aging, materials
Battery anodes
Battery cathodes
Battery electrolytes
Electric conductivity
Electric impedance
Secondary **battery** separators
Swelling, physical
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT Fluoropolymers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels

and conductivity and aging stability of assembled **batteries**)

IT 24937-79-9, PVDF
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(Kynar, complex with mesophase carbon microbeads, **anode coating**; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 21324-40-3, **Lithium** hexafluorophosphate (LiPF6)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 84-74-2, Dibutyl phthalate
RL: NUU (Other use, unclassified); USES (Uses)
(gel plasticizer, extracted before measurements; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 7782-42-5D, Graphite, complex with Kynar
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(mesophase microbeads; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 872-50-4, N-Methylpyrrolidone, uses
RL: NUU (Other use, unclassified); USES (Uses)
(slurry solvent; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

RE.CNT 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(2) Barriere, B; Proceedings of the Fourth International Batteries 2001

Symposium 2001
(3) Boyer, R; Macromolecules 1985, V18, P427 CAPLUS
(4) Choe, H; Electrochim Acta 1995, V40, P2289 CAPLUS
(5) Ebner, W; Solid State Ionics 1994, V69, P238 CAPLUS
(6) Gozdz, A; US 5296318 1994 CAPLUS
(7) Gozdz, A; US 5540741 1996 CAPLUS
(8) Ozawa, K; Proceedings of the 10th International Seminar and Exhibit on Primary and Secondary Batteries 1993
(9) Ozawa, K; Solid State Ionics 1994, V69, P212 CAPLUS
(10) Tarascon, J; J Electrochem Soc 1991, V138, P2859 CAPLUS
(11) Tarascon, J; Solid State Ionics 1996, V86, P49
(12) Tazaki, M; J Appl Polym Sci 1977, V65(8), P1517
(13) Tsuchida, E; Electrochem Acta 1983, V28(5), P591 CAPLUS

L69 ANSWER 22 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:306576 CAPLUS
DN 139:182767
ED Entered STN: 22 Apr 2003
TI Li3PO4:N/LiCoO2 coatings for thin film **batteries**
AU Gross, M. E.; Martin, P. M.; Stewart, D. C.; Johnston, J. W.; Windisch, C. F.; Graff, G. L.; Rissmiller, P. L.; Dudeck, E. L.
CS Pacific Northwest National Laboratory, Richland, WA, USA
SO Annual Technical Conference Proceedings - Society of Vacuum Coaters (2002), 45th, 119-124
CODEN: ATCCDI; ISSN: 0731-1699
PB Society of Vacuum Coaters
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
AB Li3PO4:N (LIPON)/Li1.04CoO2 thin film **battery** structures were deposited up to 2 μm thick were deposited using a 15.2 cm diameter Li2.9PO3.5 pressed powder target for reactive RF magnetron sputtering. Li1.04CoO2 thin films were deposited using a 15.2 cm diameter LiCoO2 pressed powder target. LIPON films were deposited in an ultra pure N2 atmosphere and LiCoO2 films were deposited in an ultra pure atmospheric of Ar + O2. Total chamber pressure during deposition ranged between 5 and 20 mtorr and RF power to the sputtering targets ranged from 100 W to 450 W. Because XPS gave ambiguous compositional results, the films were optimized for a.c. and d.c. conductivity Elec. conductivity was extremely sensitive to deposition conditions, deposition rate, sputtering gas pressure, and reactive gas partial pressure. AC conductivity measurements were made at a frequency of 10 kHz, and were correlated to d.c. conductivity measurements. LIPON films had the highest conductivities in the 660 nS cm-1 range and the highest a.c. conductivity of Li1.04CoO2 films was .apprx.0.24 S cm-1. Earlier work showed the most conductive films were deposited at 20 mtorr pressures and target powers of 100 W. This work has scaled up to conductive films being deposited at 7.5 mtorr pressures and target powers of 400 W. X-ray diffraction anal. showed that the films were mostly amorphous. Films deposited under these conditions were transparent at visible wavelengths with a refractive index

of 1.6. Lower conductivity films were brownish in appearance and had less transmission than films with high conductivity The rechargeable **battery** structure consisting of an alumina substrate, gold current collector, 0.5-μm Li1.04CoO2 **cathode**, 1.2-μm LIPON electrolyte, **Li** metal **anode**, and a **copper** current collector are currently under test. Early thin film **battery** cycle testing was successful, addnl. testing is on-going. Performance results are correlated with film properties and reported. Future work will involve optimization of **battery** performance on a large scale and scale up of the deposition process to include flexible web processing.

ST Li3PO4 LiCoO2 coating thin film reactive RF magnetron sputtering; XRD secondary **lithium battery** electrolyte **electrode** cond SEM voltammetry

IT **Battery electrodes**
Battery electrolytes
Cyclic voltammetry
Electric conductivity
Electric impedance
Secondary **batteries**
(Li3PO4:N/LiCoO2 **coatings** for thin film secondary **batteries**)

IT Ceramics
(coated substrate; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT Polyimides, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(coated substrate; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT Glass, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(gold-coated, coated substrate; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT Reactive sputtering
(radio-frequency, magnetron; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT Magnetron sputtering
(radio-frequency, reactive; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT **Crystal** structure
(rhombohedral (LiCoO2 film); Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT 203402-92-0P, **Lithium** nitride phosphate
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(LIPON, sputtered layer; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT 7727-37-9, Nitrogen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT **7439-93-2**, **Lithium**, uses 12142-83-5, **Tin**

nitride (Sn3N4)
RL: DEV (Device component use); USES (Uses)
(**anode**; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT 1344-28-1, Alumina, uses **7440-32-6**, **Titanium**, uses 60676-86-0, Fused silica
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(coated substrate; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); USES (Uses)
(**foil**; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(gold-coated, coated substrate, and **anode**; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT **12190-79-3**, **Cobalt lithium** oxide (CoLiO2)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(pressed powder target; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT 581094-51-1, **Lithium** metaphosphate oxide (Li2.9(PO3)O0.5)
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(pressed powder target; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT 152829-46-4P, **Cobalt lithium** oxide (CoLi1.04O2)
RL: DEV (Device component use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(sputtered layer, **cathode**; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

IT 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(substrate coating; Li3PO4:N/LiCoO2 coatings for thin film secondary **batteries**)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Bates, J; J Vac Sci Technol 1996, VA14(1), P34
(2) Bates, J; Solid State Ionics 1992, V53-56, P647 CAPLUS
(3) Bates, J; Solid State Ionics 2000, V135(1-4), P33 CAPLUS
(4) Dudney, N; Curr Opin Solid State Mater Sci 1999, V4(5), P479
(5) Dudney, N; J Vac Sci Technol 1993, VA11(2), P377
(6) John, B; J Amer Ceramic Soc 1993, V76(4), P929
(7) Martin, P; J Vac Sci Technol A 1997, V15(3), P1098 CAPLUS

L69 ANSWER 23 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN DUPLICATE 3
AN 2001:64322 CAPLUS
DN 134:103336
ED Entered STN: 26 Jan 2001

TI **Lithium** thin film **lamination** technology on **electrode** to increase **battery** capacity

IN Hisashi, Tsukamoto; Chananit, Sintuu
PA Quallion, LLC, USA

SO PCT Int. Appl., 14 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM H01M
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001006578	A2	20010125	WO 2000-US19348	20000714
WO 2001006578	A3	20011011		

W: AE, AL, AU, BA, BB, BG, BR, CA, CN, CR, CU, CZ, DM, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LS, LT, LV, MA, MG, MK, MN, MX, NO, NZ, PL, RO, SG, SI, SK, TR, TT, UA, US, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 2000061027	A5	20010205	AU 2000-61027	20000714
PRAI US 1999-144146P	P	19990716		
WO 2000-US19348	W	20000714		

AB **Lithium** is **laminated** onto or into an **electrode** structure comprising a metal conducting layer with an active material mixture of, for example, a nanocomposite of silicon monoxide, together with graphite and a binder, such as polyvinyl di-fluoride (PVDF). The **lamination** of **lithium** metal onto or into the **electrode** structure will reduce the amount of irreversible capacity by readily supplying a sufficient amount of **lithium** ions to form the initial solid electrolyte interface. In order to **laminate** **lithium** onto or into the neg. **electrode**, the **lithium** is first **deposited** onto a carrier, which is then used to **laminate** the **lithium** onto or into the **electrode** structure. The next step is placing the **coated** **electrode** material and the **lithium-deposited** plastic between two rollers or two plates. The rollers or plates are heated to about 120° or within the range of 25-250°. A pressure of 50-600 kg/cm2 is applied to the rollers. The speed of movement of the materials through the roller pair or the plate pair is in the range of 10 cm/min to 5 m/min. The method can be used for either single-sided or double-sided coating. Using this technol. alone, the **battery** capacity can increase by 7% to 15%.

ST **battery electrode lithium** thin film **lamination**

IT **Lamination**
(**lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT Polyesters, uses
Polyimides, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(**lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT Secondary **batteries**
(**lithium**; **lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nanocomposite; **lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT **7439-93-2**, **Lithium**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT 25038-59-9, Polyethylene terephthalate, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT 113443-18-8, Silicon monoxide
RL: DEV (Device component use); USES (Uses)
(nanocomposite; **lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT 24937-79-9, Pvdf
RL: TEM (Technical or engineered material use); USES (Uses)
(nanocomposite; **lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

IT 9003-07-0, Polypropylene
RL: TEM (Technical or engineered material use); USES (Uses)
(**sheet**; **lithium** thin film **lamination** technol. on **electrode** to increase **battery** capacity)

L69 ANSWER 24 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:919189 CAPLUS
DN 136:22019
ED Entered STN: 21 Dec 2001
TI **Cathode** and **anode** plates sandwiched between porous metal supports, their manufacture, and nonaqueous electrolyte secondary **battery** using them
IN Seyama, Yukitaka
PA Japan Storage Battery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-02; H01M004-04; H01M004-58; H01M004-74; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001351613	A2	20011221	JP 2000-169422	20000606
PRAI	JP 2000-169422		20000606		

AB The **cathode** (**anode**) plates are manufactured by applying **cathode** (**anode**) active material pastes on two pieces of porous metal supports, followed by **lamination** to face the paste layer each other. The **battery** using the **electrode plates** shows long cycle life.

ST **cathode anode lithium battery**
porous metal support

IT Secondary **batteries**
(**lithium**; manufacture of **cathode** and **anode** plates sandwiched between porous metal supports, for nonaq. electrolyte secondary **lithium battery**)

IT **Battery anodes**
Battery cathodes
(manufacture of **cathode** and **anode** plates sandwiched between porous metal supports, for nonaq. electrolyte secondary **lithium battery**)

IT 7782-42-5, Graphite, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**anode** active material; manufacture of **cathode** and **anode** plates sandwiched between porous metal supports, for nonaq. electrolyte secondary **lithium battery**)

IT 52627-24-4, **Cobalt lithium** oxide
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(**cathode** active material; manufacture of **cathode** and **anode** plates sandwiched between porous metal supports, for nonaq. electrolyte secondary **lithium battery**)

IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(mesh; manufacture of **cathode** and **anode** plates sandwiched between porous metal supports, for nonaq. electrolyte secondary **lithium battery**)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(pierced **sheet**; manufacture of **cathode** and **anode** plates sandwiched between porous metal supports, for nonaq. electrolyte secondary **lithium battery**)

L69 ANSWER 25 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:745653 CAPLUS
DN 135:291368
ED Entered STN: 12 Oct 2001
TI Secondary **lithium** ion **batteries** with high capacity and

safety

IN Yamauchi, Takashi; Mizushima, Koichi; Kanei, Hideyuki; Sato, Yuji; Igasaki, Yoshiyuki
PA Toshiba Corp., Japan

SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-58; H01M004-64; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001283830	A2	20011012	JP 2000-90966	20000329

PRAI JP 2000-90966 20000329

AB The **batteries** use **electrode** stacks comprising **cathode sheets coated** with LixMO2 (M = transition metal, preferably, Mn, **Co**, **Ni**) and **anode sheets** coated with **Li-intercalating** C materials and have the **cathode sheet** current collector length l (m) and thickness S (μm) satisfying the relations of S ≥33.3l and 1.5 ≤ 0.217√(.hivin.C/h) ≤ l ≤ 2.36.hivin.C/hL [.hivin.C = discharge capacity (Ah); h = **electrode** height (m); L = **cathode** active material layer thickness (μm)]. The **batteries** show high capacity and no inflammation when short-circuits occur.

ST **lithium battery cathode** current collector safety; carbon **anode lithium battery** capacity safety

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(**anodes**; secondary **Li** ion **batteries** with high capacity and safety)

IT Transition metal oxides
RL: DEV (Device component use); USES (Uses)
(**cathodes**; secondary **Li** ion **batteries** with high capacity and safety)

IT Secondary **batteries**
(**lithium**; secondary **Li** ion **batteries** with high capacity and safety)

IT **Battery anodes**
Battery cathodes
Safety
(secondary **Li** ion **batteries** with high capacity and safety)

IT **12190-79-3P**, **Cobalt lithium** oxide (CoLiO2)
RL: DEV (Device component use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(**cathode**; secondary **Li** ion **batteries** with high capacity and safety)

IT 7439-96-5, Manganese, uses **7440-02-0**, **Nickel**, uses
RL: DEV (Device component use); USES (Uses)
(**lithium** mixed oxides containing, **cathodes**; secondary **Li** ion **batteries** with high capacity and safety)

L69 ANSWER 26 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:635700 CAPLUS
DN 135:197993
ED Entered STN: 31 Aug 2001
TI **Electrodes** for secondary **lithium batteries**, their manufacture, and secondary **batteries**
IN Hataya, Koji
PA Furukawa Electric Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-04; H01M004-58; H01M004-70; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001236945	A2	20010831	JP 2000-43689	20000221

PRAI JP 2000-43689 20000221

AB The **electrodes** comprise metal **foils** having **coatings** containing **Li-intercalating** active mass on 1 or both sides. The **foils** have ≥1 through holes or slits having maximum width or diameter of <100 μm per area of diameter <20 mm. The **electrodes** are manufactured by formation of holes or slits in metal **foils** having active mass coatings. **Lithium batteries** with **anodes** and/or **cathodes** comprising the above stated **electrodes** are also claimed. Permeation of the electrolytes throughout the **batteries** is improved to give **batteries** with uniform quality and excellent elec. performance.

ST secondary **lithium battery electrode** holed collector
IT Secondary **batteries**
(**lithium**; secondary **lithium batteries** with active mass-**coated electrodes** having slits or through holes for easy permeation of electrolytes)
IT **Foils**
(metal **electrode** collectors; secondary **lithium batteries** with active mass-**coated electrodes** having slits or through holes for easy permeation of electrolytes)
IT **Battery electrodes**
(secondary **lithium batteries** with active mass-**coated electrodes** having slits or through holes for easy permeation of electrolytes)

L69 ANSWER 27 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2001:356648 CAPLUS
DN 134:369398
ED Entered STN: 18 May 2001
TI Secondary **lithium battery** and its manufacture
IN Kito, Masanobu; Nemoto, Hiroshi
PA NGK Insulators, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-04; H01M004-58; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001135302	A2	20010518	JP 1999-310645	19991101
PRAI JP 1999-310645		19991101		

AB The **battery** has an **electrode** comprising a pair of **electrode plates laminated** or rolled via a separator in a nonaq. electrolytic solution, in which the **cathode** active material is composed of **Li** manganate to show the resistivity (ρ) of the material layer $\leq$500 Ω-cm or $\rho \leq 32500/(Y + 1.73) - 8300$ (Y = ion number of Mh based on O number 4) to the thickness direction without impregnation of the electrolytic solution The **battery** is manufactured by sandwiching a pair of **electrode sheet** with a pressure to measure the ρ distribution on the **sheet**, followed by rolling or **laminating** the **electrode sheet.** The **battery** is useful for elec. or hybrid vehicles. The **battery** shows low internal resistivity and uniform product quality.

ST **battery** nonaq electrolyte **lithium** manganate **cathode**; **cathode** resistivity **battery** **lithium** manganate; cubic spinel **lithium** manganate **battery cathode**

IT Secondary **batteries**
(button-type, cubic spinel; manufacture of secondary **lithium battery**)

IT **Battery cathodes**
(cubic spinel; manufacture of secondary **lithium battery**)

IT Secondary **batteries**
(**lithium**; manufacture of secondary **lithium battery** having)

IT 12057-17-9, **Lithium** manganate (LiMn2O4) 155472-68-7, **Lithium** manganese oxide (Li1.1Mn1.9O4) 176979-23-0, **Lithium** manganese oxide (Li1.15Mn1.85O4) 333337-19-2, **Lithium** manganese **nickel titanium** oxide (LiMn1.8(**Ni**,**Ti**)0.2O4) 333337-21-6
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(cubic spinel; manufacture of secondary **lithium battery**)

L69 ANSWER 28 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-134182 [18] WPIX
DNN N2002-101499 DNC C2002-041546
TI Manufacture of **lithium** polymer **battery** involves repeated charging of **battery** under specified conditions for gas evolution, after which cladding seal is broken to eject gas, and re-sealing cladding.
DC A85 L03 X16
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 2001283914 A 20011012 (200218)* 8p H01M010-40
ADT JP 2001283914 A JP 2000-93167 20000330
PRAI JP 2000-93167 20000330
IC ICM H01M010-40
AB JP2001283914 A UPAB: 20020319
NOVELTY - **Battery** sealed in an outer cladding (7), is charged, with initial gas evolution, till a predetermined cell voltage (more than 3.7V) is generated, followed by aging at 90-100 deg. C, for 0.5-3 hours. Then, second charging for stabilizing gas generation and **battery** characteristics, is performed, with aging at 60-70 deg. C. Part of the outer cladding is opened to eject accumulated gas, then resealed.

DETAILED DESCRIPTION - A bag-like outer cladding comprising a **laminate** of a metallic **foil** between resin films, seals an electricity generating element (4) consisting of a **sheet**-like positive **electrode** board, a film of polymer separator and a negative **electrode plate.** A non-aqueous **electrolyte** is also dispersed in the electricity generating element. Positive and negative **electrode** leads (5,6) are extracted externally, from sealed outer cladding, to form terminals (8,9).

USE - For **lithium** polymer **battery** having favorable **battery** characteristics.

ADVANTAGE - The thickness of the **lithium** polymer **battery** can be controlled easily, and excellent **battery** characteristics are imparted. A stable manufacture of **lithium** polymer **battery**, comprising a most suitable gel as non-aqueous electrolyte, is offered.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of **lithium** polymer **battery.**

Electricity generating element 4
Positive **electrode** lead 5
Negative **electrode** lead 6
Outer cladding 7
Output terminals 8,9
Insulating protective film 10,11
Outer cladding heat-welded part P1,P2
Outer cladding bent part T

Dwg.1/2
FS CPI EPI
FA AB; GI
MC CPI: A11-B; A12-E06; L03-E03
EPI: X16-B01F1; X16-F01A; X16-J02; X16-J08

L69 ANSWER 29 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-125658 [17] WPIX
DNN N2002-094281 DNC C2002-038783
TI Non-aqueous secondary **battery** used for motor vehicles, has separator having preset heat shrinking rate at specified temperature and has predetermined energy capacity and volume energy density.
DC A85 L03 X16
PA (OSAG) OSAKA GAS CO LTD
CYC 1
PI JP 2001243936 A 20010907 (200217)* 7p H01M002-16
ADT JP 2001243936 A JP 2000-54189 20000229
PRAI JP 2000-54189 20000229
IC ICM H01M002-16
ICS H01M002-02; H01M010-40
AB JP2001243936 A UPAB: 20020313
NOVELTY - Non-aqueous secondary **battery** is a flat **battery** equipped with positive **electrode** (101a), negative **plate** (101b), a separator (104) and a non-aqueous electrolyte containing **lithium** salt. The **battery** has energy capacity of 30 Wh or more and volume energy density of 180 Wh/l or more. The separator is a **laminate** of two or more **sheets** and has heat shrinking rate of 5% or less along any direction at 150 deg. C.
USE - For storage systems of solar power generation systems and electric vehicles.
ADVANTAGE - The flat type **battery** has high volume energy density and excellent heat resistance. Internal short circuit is prevented at high temperature environment and the **battery** has high safety.
DESCRIPTION OF DRAWING(S) - The figure shows the structure of an **electrode laminate** accommodated inside the **battery.**
Positive **electrode** 101a
Negative plate 101b
Separator 104
Dwg.2/2
FS CPI EPI
FA AB; GI
MC CPI: A12-E06A; A12-T04C; L03-H05
EPI: X16-B01F; X16-F01; X16-F02

L69 ANSWER 30 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-099887 [14] WPIX
DNN N2002-073856 DNC C2002-031334
TI **Lithium** cell for portable device, has extraction part from **lamination sheet** of lead which is covered by synthetic rubber, so that **lamination sheet** along with bag-like edge part side of lead is provided externally.
DC A85 L03 X16
PA (KYOC) KYOCERA CORP
CYC 1
PI JP 2001243931 A 20010907 (200214)* 5p H01M002-06

ADT JP 2001243931 A JP 2000-50982 20000228
PRAI JP 2000-50982 20000228
IC ICM H01M002-06
ICS H01M002-02; H01M010-40
AB JP2001243931 A UPAB: 20020301
NOVELTY - **Lithium** cell has electricity generation element (2) containing electrolyte between **electrodes** with leads (3,4). The element is provided in a **battery**-jar (1) consisting of a bag-like **lamination sheet.** The extraction part from the **lamination sheet** of the lead is covered by a synthetic rubber (5), so that the **lamination sheet** along with bag-like edge part side of the lead is provided externally.

DETAILED DESCRIPTION - The **lithium** cell consists of an electricity generation element which is obtained by arranging an electrolyte between the positive **electrodes** and the negative **plates** containing leads. The leads are provided for extracting electrochemical energy externally. The electricity generation element is provided in a **battery**-jar consisting of a bag-like **lamination sheet.** The extraction part from the **lamination sheet** of the lead is covered by a synthetic rubber, so that the **lamination sheet** along with the bag-like edge part side of the lead is provided externally.

USE - For portable devices.

ADVANTAGE - A gap is generated between the **battery**-jar and the lead at the time of adhesion. Leakage of electrolyte and penetration of moisture content are prevented. Reliability of the **lithium** cell is enhanced.

DESCRIPTION OF DRAWING(S) - The figure shows the top view of the structure of the **lithium** cell.

Battery-jar 1
Electricity generation element 2
Leads 3,4
Synthetic rubber 5
Dwg.1/3
FS CPI EPI
FA AB; GI
MC CPI: A12-E04; A12-E06C; A12-S07A; L03-E01B5B; L03-E01D
EPI: X16-B01F; X16-F01

L69 ANSWER 31 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2002-002462 [01] WPIX
DNN N2002-001862 DNC C2002-001134
TI **Lithium** ion secondary **battery** consists of high boiling **electrolyte**, negative **plate** containing graphite group carbonaceous coated with amorphous coke, and positive **electrode.**
DC A85 E36 L03 X16
PA (MITU) MITSUBISHI CHEM CORP
CYC 1
PI JP 2001229924 A 20010824 (200201)* 10p H01M004-58
ADT JP 2001229924 A JP 2000-34114 20000210
PRAI JP 2000-34114 20000210
IC ICM H01M004-58

ICS C01B031-04; H01M002-02; H01M004-02; H01M010-40
AB JP2001229924 A UPAB: 20020105
NOVELTY - The **lithium** ion secondary **battery** consists of negative **plate**, positive **electrode** and an **electrolyte** having boiling point more than 200 deg. C. The negative active substance of negative plate is a graphite group carbonaceous coated with amorphous coke.
USE - As power unit for cam corder, audio apparatus, portable computer, portable telephone.
ADVANTAGE - The evolution of gas from high boiling organic solvent during charging is suppressed. The swelling of **battery** even at high temperature is prevented.
Dwg.0/0
FS CPI EPI
FA AB; DCN
MC CPI: A12-E06A; E31-N04B; L03-E04B
EPI: X16-B01F; X16-E01; X16-E01C; X16-F01

L69 ANSWER 32 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-392848 [42] WPIX
DNN N2001-289036 DNC C2001-119857
TI Secondary **battery** e.g. **lithium** secondary **battery** for electricity generation, has ion impermeable polymeric **sheet** having elastic deformation, placed between core surfaces of positive **electrode** and negative **plate.**
DC A85 L03 X16
PA (SAOL) SANYO ELECTRIC CO LTD
CYC 1
PI JP 2001093578 A 20010406 (200142)* 9p H01M010-40
ADT JP 2001093578 A JP 1999-266355 19990920
PRAI JP 1999-266355 19990920
IC ICM H01M010-40
ICS H01M002-22
ICA C08J005-18
AB JP2001093578 A UPAB: 20010726
NOVELTY - The secondary **battery** has a **laminate** **electrode** (4) which composes a **laminate** unit (40). The **laminate** unit consists of strip-shaped positive **electrode** (41) and strip-shaped negative plate (44). A ion impermeable polymeric **sheet** (47) with elastic deformation, is placed between core surfaces (42,45) and a separator (48) of ionic permeability is sandwiched between active material layers (43,46).
DETAILED DESCRIPTION - The positive **electrode** has positive **electrode** active material layer (43) **laminated** on one or both sides of core (42), and similarly the negative plate has negative plate active material layer (46) **laminated** on one or both sides of core (45).
USE - As **lithium** secondary **battery** for electricity generation.
ADVANTAGE - The secondary **battery** has excellent cycle characteristics during charging and discharging due to expansion-contraction of positive **electrode** .

DESCRIPTION OF DRAWING(S) - The figure shows expanded sectional view of **laminate electrode.** (The drawing includes non-English language text).
Laminate electrode 4
Laminate unit 40
Positive **electrode** 41
Cores 42,45
Positive **electrode** active material layer 43
Negative plate 44
Negative plate active material layer 46
Polymeric **sheet** 47
Separator 48
Dwg.1/7
FS CPI EPI
FA AB; GI
MC CPI: A99-A; L03-E01A; L03-E01B
EPI: X16-B01F; X16-F03

L69 ANSWER 33 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-384500 [41] WPIX
DNN N2001-282204 DNC C2001-117742
TI Flat **battery** has safety valve and heat welding resin **sheet** having lower melting point provided at the sealing portion of outer cladding case.
DC A85 L03 X16
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 2001093489 A 20010406 (200141)* 8p H01M002-06
ADT JP 2001093489 A JP 2000-11452 20000120
PRAI JP 1999-203091 19990716; JP 1999-11787 19990120
IC ICM H01M002-06
ICS H01M002-02; H01M002-08; H01M002-12; H01M010-40
AB JP2001093489 A UPAB: 20010724
NOVELTY - Flat **battery** is equipped with separator, negative **electrode plate**, positive **electrode** board and **electrolyte** received inside an outer cladding case (7) formed from **laminated** resin **sheet.** Safety valve is included in the sealing portion of the outer cladding case. Heat welding resin **sheet** at the sealing portion of the case is equipped with a melting point lower than that of **laminated sheet.**
USE - E.g. **lithium** polymer secondary **battery.**
ADVANTAGE - Enables ejecting gas outside the **battery** quickly during abnormal usage of the **battery.**
DESCRIPTION OF DRAWING(S) - The figure shows the top view of the structure of the flat **battery.**
Outer cladding case 7
Dwg.1/5
FS CPI EPI
FA AB; GI
MC CPI: A99-A; L03-E01D; L03-E03
EPI: X16-B01F; X16-F01; X16-F01A; X16-F03B

L69 ANSWER 34 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-294598 [31] WPIX
DNN N2001-210720 DNC C2001-090921
TI Spiral **lithium** cell has **cathode** jar carrying spiral **electrode** provided with **lithium cathode sheet** at periphery press-contacting inner surface of jar with **anode** and sealant terminal boar connected through lead tab.
DC L03 X16
PA (FJIC) FUJI ELECTROCHEMICAL CO LTD
CYC 1
PI JP 2001052720 A 20010223 (200131)* 5p H01M006-16
ADT JP 2001052720 A JP 1999-223313 19990806
PRAI JP 1999-223313 19990806
IC ICM H01M006-16
ICS H01M002-26; H01M010-04; H01M010-40
AB JP2001052720 A UPAB: 20010607
NOVELTY - The spiral **lithium** cell has tubular negative plate jar (2) carrying non-aqueous electrolyte and a spiral **electrode** (7). Vent in the jar (2) is sealed with a sealant (6) and a gasket (4). **Anode sheet** (8) and terminal board of sealant are connected with a lead tab. The spirally wound **lithium cathode sheet** (10) exists in outer circumference of **electrode** (7) press-contacting with inner surface of jar (2).
DETAILED DESCRIPTION - The spiral **electrode** is formed by winding the **laminate** of **lithium** negative **electrode sheet** (10), positive **electrode sheet** (8) and a separator (12).
USE - Power source.
ADVANTAGE - **Lithium** negative **electrode sheet** and internal circumference of negative plate jar are electrically connected without using a lead tab. Welding of the negative **electrode** lead tab and negative **plate** jar which was conventionally performed is not required. Productivity and workability are improved even when the number of **electrode** connections are reduced.
DESCRIPTION OF DRAWING(S) - The figure shows the cross-sectional chart of internal structure of spiral **lithium** cell.
Negative plate jar 2
Gasket 4
Sealant 6
Spiral **electrode** 7
Positive **electrode sheet** 8
Lithium negative **electrode sheet** 10
Separator 12
Dwg.2/4
FS CPI EPI
FA AB; GI
MC CPI: L03-E01D
EPI: X16-E03A1; X16-E08A; X16-F03A

L69 ANSWER 35 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2001-183383 [19] WPIX

DNN N2001-130960 DNC C2001-054812

TI **Lithium battery** used as energy source, has electrically conductive coating of fluorinated polymer and mixture of fine carbon and carbon fibers, provided between **cathode** current collector and **cathode** active material.

DC A85 L03 X16

IN BHOLA, R; DASGUPTA, S; JACOBS, J K

PA (BHOL-I) BHOLA R; (DASG-I) DASGUPTA S; (JACO-I) JACOBS J K; (ELEC-N) ELECTROFUEL INC

CYC 2

PI CA 2311876 A1 20010128 (200119)* EN 17p H01M004-66
US 6261722 B1 20010717 (200142) H01M006-18
CA 2311876 C 20020507 (200239) EN H01M004-66

ADT CA 2311876 A1 CA 2000-2311876 20000627; US 6261722 B1 US 1999-361977 19990728; CA 2311876 C CA 2000-2311876 20000627

PRAI US 1999-361977 19990728

IC ICM H01M004-66; H01M006-18
ICS H01M004-58; H01M004-62

AB CA 2311876 A UPAB: 20010405

NOVELTY - A **lithium battery** has an **anode**, **anode** current collector, **lithium** ion conducting electrolyte, **cathode** containing **cathode** active material and **cathode** current collector. An electrically conductive coating is provided between **cathode** current collector and **cathode** active material. The coating comprises a fluorinated polymer with melting point above 70 deg. C, admixed with mixture of fine carbon and carbon fibers.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for rechargeable laminar **lithium battery** which comprises an **anode** capable of reversibly **intercalating lithium** ions, **anode** current collector, **lithium** ion conducting electrolyte and a composite **cathode** having a **cathode** layer which comprises mixture of positive active material capable of reversibly **intercalating lithium** and electrically conductive carbonaceous particles composed of carbon and carbon fibers. A **cathode** current collector is arranged adjacent to **cathode** layer and an electrically conductive coating comprising fluorinated polymer with melting point above 70 deg. C and carbonaceous particles which is a mixture of fine carbon and carbon fibers, is arranged between the **cathode** collector and **cathode** layer.

USE - As energy source.

ADVANTAGE - The lateral conductivity within **electron** conductive **coating** and in the **electrode** layer can beneficially affect the impedance of **electrode** current collector assembly. Conductivity within the **electrochemical cell** or **battery** is improved when carbon fibers are added to electroactive material. The electron transfer between **electrode** and current collector is enhanced as a mixture of carbon fibers and fine carbon is placed along the interface between **electrode** and current collector. The **battery** has high energy density per unit volume.

Dwg.0/1
FS CPI EPI
FA AB
MC CPI: A99-A; L03-E03
EPI: X16-A02A; X16-B01F1; X16-E01E

L69 ANSWER 36 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:859335 CAPLUS
DN 134:88701
ED Entered STN: 08 Dec 2000
TI Preparation and characterization of gold-codeposited LiMn2O4 **electrodes**
AU Lim, Mi-Ra; Cho, Wan-Il; Kim, Kwang-Bum
CS Department of Chemistry, Chonnam National University, Kwangju, 500-757, S. Korea
SO Journal of Power Sources (2001), 92(1-2), 168-176
CODEN: JPSODZ; ISSN: 0378-7753
PB Elsevier Science S.A.
DT Journal
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
AB Additive-free, gold-codeposited LiMn2O4 **electrodes** are prepared by embedding LiMn2O4 particles in an **electrodeposited coating** of metallic gold on platinum-coated quartz **crystals** for microgravimetric evaluation with an electrochem. quartz **crystal** microbalance. The chemical and structural characteristics of the **electrodes** are studied by Raman spectroscopy and X-ray diffraction and the electrochem. properties by cyclic voltammetry. Test cells are assembled with the gold-codeposited **electrode** as the working **electrode**, **lithium foil** as the counter **electrode** and a reference **electrode.** A 1.0 M **lithium** perchlorate (LiClO4), propylene carbonate (PC) solution is used as the electrolyte. Gold-codeposited LiMn2O4 **electrodes** prepared at **deposition** times of 4-8 min have a good adhesion of powder to the substrate. The cyclic voltammograms show little difference in the exchanged charge with cycling. SEM shows fracture of the LiMn2O4 powders induced by a dimensional mismatch in the particles after cyclic voltammetric tests at high scan rates.
ST **battery cathode lithium** manganate codeposited gold
IT Secondary **batteries**
(**lithium**; preparation and characterization of gold-codeposited LiMn2O4 **electrodes**)
IT **Battery cathodes**
(preparation and characterization of gold-codeposited LiMn2O4 **electrodes**)
IT 7440-57-5, Gold, uses 39457-42-6, **Lithium** manganese oxide
RL: DEV (Device component use); USES (Uses)
(preparation and characterization of gold-codeposited LiMn2O4 **electrodes**)

RE.CNT 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
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L69 ANSWER 37 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:130888 CAPLUS
DN 137:96173
ED Entered STN: 20 Feb 2002
TI **Coatings** for **electrochemical** applications
AU Despotopoulou, Marina
CS ATOFINA Chemicals, Inc., King of Prussia, PA, 19406, USA
SO Athens Conference on Coatings: Science and Technology, Proceedings, 27th, Athens, Greece, July 2-6, 2001 (2001), 57-70 Publisher: Institute of Materials Science, New Paltz, N. Y.
CODEN: 69CGM9
DT Conference
LA English
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72, 76
AB **Anodes** for **Li** ion **batteries** were fabricated by mixing MCMB graphite in a solution of poly(vinylidene fluoride) PVDF in N-methylpyrrolidone in a ball mill. A clean **Cu foil** was coated with the dispersion and placed in an oven to dry at 150° for 30 min. The adhesion of PVDF coating on **Cu** was measured by

peeling strength tests and optimum graphite concentration was determined as 5 g PVDF
for 10 g graphite, to attain conductivity suitable for **battery** use. The **coated electrodes** were subjected to pressing/ **lamination** prior to final assembly into **batteries** to minimize voids. Gel separators were fabricated using microporous PVDF films with di-Bu phthalate as plasticizer with electrolyte of LiPF6 in ethylene carbonate/propylene carbonate. The gel electrolyte was enclosed in a button-cell with stainless steel **electrodes** and the complex impedance and resistance of the electrolyte were measured. The swelling and aging of the gel electrolyte were also studied.

ST polyvinylidene fluoride graphite slurry **coating copper electrode**; elec cond adhesion PVDF graphite **coating copper electrode**; gel electrolyte PVDF **lithium** hexafluorophosphate cond swelling aging; **lithium battery electrode** electrolyte PVDF based component

IT Adhesion, physical
Aging, materials
Battery anodes
Battery cathodes
Battery electrolytes
Electric conductivity
Electric impedance
Secondary **battery** separators
Swelling, physical
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT Fluoropolymers, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate
RL: DEV (Device component use); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT **7440-50-8, Copper**, uses 7782-42-5, Graphite, uses 24937-79-9, PVDF
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 21324-40-3, **Lithium** hexafluorophosphate (LiPF6)
RL: DEV (Device component use); PRP (Properties); USES (Uses)
(fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels

and conductivity and aging stability of assembled **batteries**)

IT 84-74-2, Dibutyl phthalate
RL: NUU (Other use, unclassified); USES (Uses)
(gel plasticizer; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

IT 872-50-4, N-Methylpyrrolidone, uses
RL: NUU (Other use, unclassified); USES (Uses)
(slurry solvent; fabrication of **electrodes** and gel electrolytes based on PVDF-graphite slurry coatings on **copper** and PVDF-LiPF6 gels and conductivity and aging stability of assembled **batteries**)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Boyer, R; Macromolecules 1985, V18, P427 CAPLUS
(2) Choe, H; Electrochimica Acta 1995, V40, P2289 CAPLUS
(3) Gozdz, A; US 5540741 CAPLUS
(4) Tazaki, M; J Appl Polym Sci 1977, V65(8), P1517

L69 ANSWER 38 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:592961 CAPLUS
DN 133:180356
ED Entered STN: 25 Aug 2000
TI Electrically conductive, freestanding microporous polymer **sheet**
IN Emanuel, James; Young, James; Pekala, Richard W.
PA Amtek Research International Llc, USA
SO PCT Int. Appl., 49 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM H01M004-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2000049669	A2	20000824	WO 2000-US4204	20000218
	WO 2000049669	A3	20010215		
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1161774	A2	20011212	EP 2000-921334	20000218
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002542574	T2	20021210	JP 2000-600317	20000218

US 6524742 B1 20030225 US 2000-507174 20000218
US 2004010909 A1 20040122 US 2003-371993 20030221
PRAI US 1999-120842P P 19990219
US 2000-507174 A3 20000218
WO 2000-US4204 W 20000218

AB A freestanding, microporous polymer **sheet** is composed of a polymer matrix binding and elec. conductive matrix. The polymer matrix preferably includes UHMWPE, and the elec. conductive matrix preferably is in powder form. The UHMWPE is of a mol. weight that provides sufficient mol. chain entanglement to form a **sheet** with freestanding characteristics. Multiple microporous **sheets** can be wound or stacked in a package filled with an electrolyte to function as **electrodes** in an energy storage device, such as a **battery** . Metallic layers can be applied to the microporous **sheets** to function as current collectors in such devices.

ST **battery** polymer **sheet** elec conductive freestanding microporous

IT Primary **batteries**
(**Zn**-MnO2; elec. conductive, freestanding microporous polymer **sheet**)

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); USES (Uses)
(**crystalline** and amorphous; elec. conductive, freestanding microporous polymer **sheet**)

IT Capacitors
(double layer; elec. conductive, freestanding microporous polymer **sheet**)

IT **Battery anodes**
Battery cathodes
Electrodeposition
Secondary **battery** separators
Sputtering
(elec. conductive, freestanding microporous polymer **sheet**)

IT Carbon black, uses
Carbon fibers, uses
Coke
Fluoropolymers, uses
Hydrides
Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(elec. conductive, freestanding microporous polymer **sheet**)

IT **Coating** process
(**electroless**; elec. conductive, freestanding microporous polymer **sheet**)

IT **Battery** electrolytes
(gel; elec. conductive, freestanding microporous polymer **sheet**)

IT Secondary **batteries**
(lead-acid; elec. conductive, freestanding microporous polymer **sheet**)

IT Coating process
(plasma spraying; elec. conductive, freestanding microporous polymer

sheet)
IT Naphthenic oils
RL: TEM (Technical or engineered material use); USES (Uses)
(process oil, Shellflex 3681; elec. conductive, freestanding microporous polymer **sheet**)
IT Coating process
(roller; elec. conductive, freestanding microporous polymer **sheet**)
IT Polyolefins
RL: DEV (Device component use); USES (Uses)
(ultrahigh mol.weight; elec. conductive, freestanding microporous polymer **sheet**)
IT 7631-86-9, Silica, uses
RL: DEV (Device component use); USES (Uses)
(colloidal; elec. conductive, freestanding microporous polymer **sheet**)
IT 1313-13-9, Manganese dioxide, uses 1314-22-3, **Zinc** dioxide 1314-41-6, Lead oxide pb3o4 1317-36-8, Lead oxide pbo, uses 1332-37-2, **Iron** oxide, uses 1335-25-7, Lead oxide 7439-92-1, Lead, uses **7440-02-0**, **Nickel**, uses **7440-22-4**, **Silver**, uses **7440-48-4**, **Cobalt**, uses **7440-66-6**, **Zinc**, uses 7782-42-5, Graphite, uses 9011-17-0, Kynar 2801 11104-61-3, **Cobalt** oxide 11113-74-9, **Nickel** hydroxide 12196-72-4 20427-58-1, **Zinc** hydroxide 21041-95-2, Cadmium hydroxide 24937-79-9, Polyvinylidene difluoride 25014-41-9, Polyacrylonitrile 25322-68-3 39300-70-4, **Lithium nickel** oxide 39457-42-6, **Lithium** manganese oxide 52627-24-4, **Cobalt lithium** oxide
RL: DEV (Device component use); USES (Uses)
(elec. conductive, freestanding microporous polymer **sheet**)
IT 9002-88-4
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(elec. conductive, freestanding microporous polymer **sheet**)
IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(microbeads; elec. conductive, freestanding microporous polymer **sheet**)

L69 ANSWER 39 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:49068 CAPLUS
DN 132:80967
ED Entered STN: 21 Jan 2000
TI **Sheet** type **battery** with structure for preventing short circuit between **cathode** terminal and **anode** terminal
IN Ijiri, Yasuo; Tsujimoto, Junichi
PA Mitsubishi Cable Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-34

ICS H01M002-30; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000021387	A2	20000121	JP 1998-201305	19980701
PRAI	JP 1998-201305		19980701		

AB This **battery** comprises a **sheet** type **electrode** unit sealed with a **laminate** film constituted of a protective layer, a metal **foil**, and an adhesive layer of thermoplastic resin by setting the adhesive layer in the **electrode** unit side. The adhesive layer is extended more than the metal **foil** to be exposed to outside in the periphery of an **electrode** terminal led out of the **electrode** unit or the **laminate** film is folded back in the opposed direction to the direction in which an **electrode** terminal of the **electrode** unit is led out. Since a wide gap is kept between an **electrode** terminal and the metal **foil**, even in the case a conductive and fine foreign substance exists near an **electrode** terminal, short circuiting through the foreign substance and the metal **foil** does not occur.

ST **electrode** thermoplastic film short circuit prevention; **battery electrode** terminal thermoplastic insulation **coating**

IT **Battery electrodes**
(**batteries** comprising **electrode** units **coated** with **laminate** film for preventing short circuit)

IT Polyamides, uses
Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**laminate** film comprising; **batteries** comprising **electrode** units **coated** with **laminate** film for preventing short circuit)

IT Secondary **batteries**
(**lithium**; **batteries** comprising **electrode** units **coated** with **laminate** film for preventing short circuit)

IT Plastics, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(thermoplastics, **laminate** film comprising; **batteries** comprising **electrode** units **coated** with **laminate** film for preventing short circuit)

IT **7429-90-5**, Aluminum, uses **7440-50-8**, **Copper**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**foil**, **laminate** film comprising; **batteries** comprising **electrode** units **coated** with **laminate** film for preventing short circuit)

IT 9002-88-4, Polyethylene 25038-59-9, Poly(ethylene terephthalate), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**laminate** film comprising; **batteries** comprising **electrode** units **coated** with **laminate** film

for preventing short circuit)

L69 ANSWER 40 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:774123 CAPLUS
DN 133:352634
ED Entered STN: 05 Nov 2000
TI **Electrode** materials having increased surface conductivity
IN Ravet, Nathalie; Besner, Simon; Simoneau, Martin; Vallee, Alain; Armand, Michel; Magnan, Jean-francois
PA Hydro-Quebec, Can.
SO Eur. Pat. Appl., 22 pp.
CODEN: EPXXDW
DT Patent
LA French
IC ICM H01M004-58
ICS H01M004-48; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 72, 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1049182	A2	20001102	EP 2000-401207	20000502
	EP 1049182	A3	20040211		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	CA 2270771	AA	20001030	CA 1999-2270771	19990430
	CA 2307119	AA	20001030	CA 2000-2307119	20000428
	JP 2001015111	A2	20010119	JP 2000-132779	20000501
	US 2002195591	A1	20021226	US 2002-175794	20020621
PRAI	CA 1999-2270771	A	19990430		
	US 2000-560572	B1	20000428		

AB **Intercalated electrode** materials comprising complex oxides, especially **Li** oxides, are prepared, suitable for redox reaction by exchange of alkali metal ions (especially **Li**) and electrons with an electrolyte. The complex oxide **electrodes** can be used in **batteries**, supercapacitors or electrochromic light moderators. The complex oxides have the general formula AaMmZzOoNnFf, where A is alkali metal (e.g., **Li**), M is ≥1 transition metal (e.g., **Fe**, Mn, **V**, **Ti**, Mo, Nb, **Zn**, W), Z is ≥1 nonmetal (e.g., P, S, Si, Se, As, Ge, B, **Sn**), and a,m,z,o,n,f are chosen for elec. neutrality. A conductive carbon coating is formed or deposited on the surface of the **electrode** material, e.g., by pyrolysis of an organic material, hydrocarbons or polymers, for increased surface conductivity

ST **electrode** material carbon **coated** increased surface cond; **battery electrode** carbon **coated** increased surface cond; supercapacitor **electrode** carbon **coated** increased surface cond; **electrochromic** material carbon **coated** increased surface cond

IT Metallic fibers
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)

(aluminum; **electrode** materials having increased surface conductivity)
IT Windows
Windows
(electrochromic; **electrode** materials having increased surface conductivity)
IT **Battery cathodes**
Capacitor **electrodes**
Electrochromic materials
Electrodes
Primary **batteries**
Secondary **batteries**
Thermal decomposition
(**electrode** materials having increased surface conductivity)
IT Oxides (inorganic), uses
Oxynitrides
Phosphates, uses
Silicates, uses
Sulfates, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrode** materials having increased surface conductivity)
IT Carbon black, uses
EPDM rubber
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**electrode** materials having increased surface conductivity)
IT Hydrocarbons, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)
IT Organic compounds, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)
IT Polymers, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)
IT Polyolefins
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)
IT Polysaccharides, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)
IT Polyoxyalkylenes, uses
RL: NUU (Other use, unclassified); TEM (Technical or engineered material use); USES (Uses)
(electrolytes; **electrode** materials having increased surface conductivity)

IT Primary **batteries**
Secondary **batteries**
(**lithium**; **electrode** materials having increased surface conductivity)

IT Fluorides, uses
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(oxyfluorides; **electrode** materials having increased surface conductivity)

IT Electrolytic capacitors
(supercapacitors; **electrode** materials having increased surface conductivity)

IT Electrochromic devices
Electrochromic devices
(windows; **electrode** materials having increased surface conductivity)

IT 7440-44-0P, Carbon, uses 15365-14-7P, **Iron lithium** phosphate (FeLiPO4) 30734-08-8P, **Lithium** manganese silicate Li2MnSiO4 39302-37-9P, **Lithium titanium** oxide 180984-63-8P, **Lithium** magnesium **titanium** oxide 252943-50-3P, **Lithium vanadium** phosphate silicate Li3.5V2(PO4)2.5(SiO4)0.5 304905-30-4P 304905-31-5P, **Iron lithium** fluoride (FeLi0.2F3) 304905-32-6P, **Lithium** manganese nitride oxide (Li3MnNO) 304905-33-7P 304905-34-8P 304905-35-9P, **Lithium** magnesium **titanium** oxide (Li3.5Mg0.5Ti4O12) 304905-36-0P, **Iron lithium** phosphorus silicon oxide 304905-37-1P 304905-38-2P, **Iron lithium** phosphorus fluoride oxide 304905-39-3P 304905-40-6P 304905-41-7P 304905-42-8P
RL: DEV (Device component use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT 1314-35-8, Tungsten oxide WO3, uses 7782-42-5, Graphite, uses 50926-11-9, **Indium tin** oxide 65324-39-2, Celgard 2400
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT 1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses 7727-37-9, Nitrogen, uses 7782-44-7, Oxygen, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT 78-10-4 109-72-8, Butyl **lithium**, uses 546-68-9 553-91-3, **Lithium** oxalate 554-13-2, **Lithium** carbonate 1310-65-2, **Lithium** hydroxide 1344-43-0, Manganese oxide MnO, uses 5931-89-5, **Cobalt** acetate 5965-38-8, **Cobalt** oxalate dihydrate 6108-17-4, **Lithium** acetate dihydrate 6156-78-1, Manganese acetate tetrahydrate 6556-16-7, Manganese oxalate dihydrate 7722-76-1, Ammonium dihydrogen phosphate 7783-50-8, **Iron** fluoride FeF3 7803-55-6, Ammonium vanadate 9003-01-4, Polyacrylic acid 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer 10028-22-5, Ferric sulfate 10102-24-6, **Lithium**

silicate Li2SiO3 10377-52-3, **Lithium** phosphate Li3PO4
13463-10-0, Ferric phosphate dihydrate 14567-67-0, Vivianite
16674-78-5, Magnesium acetate tetrahydrate 25656-42-2, **Lithium**
polyacrylate 26134-62-3, **Lithium** nitride 145673-07-0
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or
reagent); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT 304905-43-9 305324-61-2
RL: NUU (Other use, unclassified); TEM (Technical or engineered material
use); USES (Uses)
(**electrode** materials having increased surface conductivity)

IT 57-50-1, reactions 77-47-4, Hexachlorocyclopentadiene 98-00-0D,
Furfuryl alcohol, derivs., polymers 100-42-5D, Styrene, derivs.,
polymers 107-13-1D, Acrylonitrile, derivs., polymers 108-05-4D, Vinyl
acetate, derivs., polymers 108-95-2D, Phenol, derivs., polymers,
reactions 115-07-1, 1-Propene, reactions 120-12-7, Anthracene,
reactions 128-69-8D, 3,4,9,10-Perylenetetracarboxylic acid dianhydride,
polymers with Jeffamine 600 198-55-0D, Perylene, derivs., polymers
630-08-0, Carbon monoxide, reactions 996-70-3,
Tetrakis(dimethylamino)ethylene 1321-74-0D, Divinylbenzene, derivs.,
polymers 6674-22-2, DBU 9002-88-4 9002-89-5 9003-07-0,
Polypropylene 9003-17-2D, Polybutadiene, derivs. 9004-34-6D,
Cellulose, derivs., reactions 9004-35-7, Cellulose acetate 9005-25-8D,
Starch, derivs., reactions 15133-82-1, Tetrakis(triphenylphosphine)
nickel 25014-41-9, Polyacrylonitrile 51736-72-2,
Polyvinylidene bromide 157889-12-8, Jeffamine ED 600-
perylenetetracarboxylic acid dianhydride copolymer
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC
(Process); RACT (Reactant or reagent)
(**electrode** materials having increased surface conductivity)

IT 75-05-8, Acetonitrile, uses 96-48-0, γ-Butyrolactone 96-49-1,
Ethylene carbonate 110-71-4 616-38-6, Dimethyl carbonate 646-06-0,
Dioxolane 2832-49-7, Tetraethylsulfamide 21324-40-3, **Lithium**
hexafluorophosphate LiPF6 25322-68-3 66950-70-7 90076-65-6,
Lithium bis(trifluoromethanesulfonyl)imide
RL: NUU (Other use, unclassified); TEM (Technical or engineered material
use); USES (Uses)
(electrolytes; **electrode** materials having increased surface
conductivity)

IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(**foils**, grills; **electrode** materials having
increased surface conductivity)

IT **7439-93-2**, **Lithium**, uses
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)
(**foils**; **electrode** materials having increased
surface conductivity)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); TEM (Technical or engineered material
use); USES (Uses)

(grills; **electrode** materials having increased surface conductivity)
IT **7440-02-0**, **Nickel**, uses
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(substrates; **electrode** materials having increased surface conductivity)

L69 ANSWER 41 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-635743 [61] WPIX
DNN N2000-471754
TI Terminal for **lithium** secondary **battery** of portable telephone, has brancing material connected with management material via hinge, so that it is movable along **lamination** direction of **plates** of **electrode laminate.**
DC X16
PA (KANT) KANSAI DENRYOKU KK; (SUME) SUMITOMO ELECTRIC IND CO
CYC 1
PI JP 2000268806 A 20000929 (200061)* 6p H01M002-30
ADT JP 2000268806 A JP 1999-66915 19990312
PRAI JP 1999-66915 19990312
IC ICM H01M002-30
AB JP2000268806 A UPAB: 20001128
NOVELTY - Management material (11) is positioned along **lamination** direction of positive and negative **plates** (EL1) of an **electrode laminate** (EL). Bracing material (12) which connects preset number of **sheets** collectively, is arranged at fixed intervals of the material (11). The material (12) is connected to the material (11), via a hinge or flexible connector, so that it is movable along the **lamination** direction.
USE - For **lithium** secondary **battery** of portable telephone, notebook computer, electronic machine, hybrid motor vehicle.
ADVANTAGE - Prevents damage to the collector **foil** by connecting bracing material to management material, in a movable manner, even if charging and discharging are performed repetitively.
DESCRIPTION OF DRAWING(S) - The figure shows the top view and front elevation of the terminal.
Management material 11
Bracing material 12
Electrode laminate EL
Plate EL1
Dwg.1/3
FS EPI
FA AB; GI
MC EPI: X16-B01F1; X16-F03A

L69 ANSWER 42 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-621531 [60] WPIX
DNN N2000-460584 DNC C2000-186687
TI **Lithium** polymer secondary **battery** has **laminated sheet** with thermobonding resin film layer which **laminates electrode** group welded along outer side and adjoined with metallic **foil** weld.

DC A85 L03 X16
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 2000223090 A 20000811 (200060)* 5p H01M002-08
ADT JP 2000223090 A JP 1999-24598 19990202
PRAI JP 1999-24598 19990202
IC ICM H01M002-08
ICS H01M002-02; H01M010-40
AB JP2000223090 A UPAB: 20001123
NOVELTY - The **battery** has an outer cladding **sheet** (12) having **lamination sheet** (15) which has aluminum **foil** (6) and thermobonding resin film (5). **Foil** (6) **laminates** film (5) that **laminates electrode** group (4) having alternate positive and negative **electrode plates** (1,2) with separator in between. The sealing of **electrode** group is done by adjoining resin layer welding (10) with **foil** layer welding (11) in outer side.
USE - For **lithium** polymer secondary **battery.**
ADVANTAGE - Since welding of resin layer is performed in outer side reinforcement of outer side of seal structure is attained and dissipation of liquid or gaseous electrolyte from seal structure is completely prevented therefore reliability of **battery** is improved.
DESCRIPTION OF DRAWING(S) - The figure shows the seal structure of **battery.**
Positive and negative **electrode plate** 1,2
Electrode group 4
Thermobonding resin film 5
Aluminum **foil** 6
Resin layer welding 10
Foil layer welding 11
Outer cladding **sheet** 12
Lamination sheet 15
Dwg.1/5
FS CPI EPI
FA AB; GI
MC CPI: A12-E06; L03-E01D
EPI: X16-B01F1; X16-F01A

L69 ANSWER 43 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-529673 [48] WPIX
DNN N2000-392017
TI Flat **battery** has **laminated sheets** sealed by heat welding and inserted into concave portion in outer cladding case.
DC X16
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 2000208110 A 20000728 (200048)* 6p H01M002-02
ADT JP 2000208110 A JP 1999-6626 19990113
PRAI JP 1999-6626 19990113
IC ICM H01M002-02
ICS H01M002-08
ICA H01M010-40

AB JP2000208110 A UPAB: 20001001
NOVELTY - A flat **laminate electrode** (4), positive **electrode** board (1), separator (3) and negative **electrode plate** (2) are integrated to a shape of a film comprising a pair of **laminated sheets.** The circumference of the **laminated sheets** are sealed by heat welding and **sheet** is inserted into an accommodation concave portion (11) in outer cladding case (7).
USE - Flat **battery** e.g. **lithium** polymer secondary **battery.**
ADVANTAGE - Though the dimension of **battery** is minimized, the efficiency of the **battery** is improved. The flat **laminated electrode** can be inserted into concave portion in outer cladding case without producing useless space in the concave portion.
DESCRIPTION OF DRAWING(S) - The figure shows the enlarged vertical longitudinal sectional view of **battery.**
Positive **electrode** board 1
Negative **electrode plate** 2
Separator 3
Electrode 4
Outer cladding case 7
Concave portion 11
Dwg.4/6
FS EPI
FA AB; GI
MC EPI: X16-B01F1; X16-F01A; X16-F01F

L69 ANSWER 44 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-202443 [18] WPIX
DNN N2000-150924 DNC C2000-062381
TI **Lithium** ion secondary **battery** for use in motor vehicles and electrically driven wheel chairs comprises cylindrical **electrode laminate** provided on metal container.
DC A85 G02 L03 X16
PA (KOSE-N) KOSERU KK; (NIPP-N) NIPPEI TOYAMA KK; (NISC) NISSAN CHEM IND LTD; (TODO-N) TODO KOGYO KK; (TOYA-N) TOYAMA KEN
CYC 1
PI JP 2000040529 A 20000208 (200018)* 5p H01M010-40
ADT JP 2000040529 A JP 1998-207257 19980723
PRAI JP 1998-207257 19980723
IC ICM H01M010-40
ICS C09D005-24; C09D163-00; H01M002-22; H01M002-26
AB JP2000040529 A UPAB: 20000419
NOVELTY - **Lithium** ion secondary **battery** comprises cylindrical **electrode laminate** (14), (formed by **laminating** positive **electrode**, negative **electrode** and separator) provided on a metal container (12). A collector is configured on the edge portion of the **electrode laminate.** A conductive paint (20) containing **nickel** powder, electrically connects collector and metal container.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the

manufacture of **lithium** ion secondary **battery.** The positive **electrode** is formed by applying positive **electrode** material containing **lithium** compound to metal **plate** (22). Similarly, the negative **electrode** is formed by applying negative **electrode** material to another metal **sheet** surface. The positive **electrode**, negative **electrode** and the separator are sequentially **laminated** and wound cylindrically to form **electrode laminate.** The conductive resin containing **nickel** powder, applied between collector and metal container is hardened at 50-100 deg. C.

USE - For use in motor vehicles, power storage **batteries** and electrically driven wheel chairs.

ADVANTAGE - The **electrode laminate** is reliably and easily connected to an external **electrode.** The **battery** is durable and safe even during conduction of heavy currents. The **battery** can be manufactured economically.

DESCRIPTION OF DRAWING - The figure shows cross sectional view of **lithium** ion secondary **battery.** (12) Metal container; ; (14) **Electrode laminate**; ; (16) Positive **electrode** collector; ; (18) Negative **electrode** collector; ; (20) Conductive paint; ; (22) Metal plate.

Dwg.1/2

FS CPI EPI
FA AB; GI
MC CPI: A08-M09A; A09-A03; A12-E06; A12-T04; G02-A05B; L03-E03
EPI: X16-B01F; X16-F03

L69 ANSWER 45 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 2000-389539 [34] WPIX
DNN N2000-291705 DNC C2000-118489
TI Laminar **battery** with coiled **electrodes** which has improved output as localized short circuits are prevented by bulge on part of **electrode.**
DC A85 L03 X16
IN AMANO, T; HOSOKAWA, N; KAMI, K; SHINKAI, R; UESHIMA, H; YAMADA, M
PA (NPDE) DENSO CORP; (NPDE) NIPPONDENSO CO LTD
CYC 3
PI FR 2786028 A1 20000519 (200034)* 92p H01M010-04
JP 2001093583 A 20010406 (200126) 30p H01M010-40
US 6335114 B1 20020101 (200207) H01M010-00
ADT FR 2786028 A1 FR 1999-14373 19991116; JP 2001093583 A JP 1999-284882 19991005; US 6335114 B1 US 1999-440512 19991115
PRAI JP 1999-284882 19991005; JP 1998-325482 19981116; JP 1999-208264 19990722
IC ICM H01M010-00; H01M010-04; H01M010-40
ICS H01M002-16; H01M002-26; H01M002-34; H01M002-40; H01M004-62; H01M004-70
AB FR 2786028 A UPAB: 20000718
NOVELTY - Laminar **battery** comprises **laminated** **electrode** made up of stratified **sheets** of positive and negative plates with a separator between them. One of the plates includes a bulge which juts out beyond the side of the other plate and which

comprises a layer preventing localized short circuits.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for method for making the **electrode** by:

a) formation of **electrode plate** in which one **plate** is formed comprising body of **electrode** and bulge;

b) formation of layer of polymer mixture in which mixture is dissolved in suitable solvent so that it can adhere to surface of **electrode** comprising bulge;

c) deposition of polymer; and

d) drying to obtain layer which prevents short circuits.

USE - As **laminated battery** (claimed).

ADVANTAGE - **Battery** has improved output compared with anterior work; and localized short circuits are prevented by the use of the bulge (claimed).

DESCRIPTION OF DRAWING(S) - The drawing shows the **battery** including the bulge.

positive **electrode** boundary 13

negative **electrode** boundary 14

coiled **electrode** 2

positive plate 21

negative plate 22

separator 23

bulge 213

Dwg.1/26

FS CPI EPI

FA AB; GI

MC CPI: A12-E06A; A12-E06B; L03-E01B9

EPI: X16-E08A; X16-F02

L69 ANSWER 46 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN

AN 2000-388089 [34] WPIX

CR 2000-278773 [24]

DNN N2000-290512 DNC C2000-117982

TI Solid electrolyte composition for **battery**, contains gelled mixture of matrix polymer, reactive monomer, organic solvent and alkali metal electrolyte salt.

DC A11 A25 A85 L03 X16

IN ITOH, T; OGINO, T; TAKEI, F; YOSHIDA, H

PA (FUIT) FUJITSU LTD

CYC 2

PI CA 2280999 A1 20000229 (200034)* EN 52p H01M010-26

JP 2000268866 A 20000929 (200055) 15p H01M010-40

ADT CA 2280999 A1 CA 1999-2280999 19990830; JP 2000268866 A JP 1999-73730 19990318

PRAI JP 1999-73730 19990318; JP 1998-245071 19980831

IC ICM H01M010-26; H01M010-40

ICS C08K003-32; H01M010-28

AB CA 2280999 A UPAB: 20001102

NOVELTY - A solid electrolyte (I) comprising a gelled mixture of:

(i) a host polymer consisting of a polysaccharide derivative;

(ii) a reactive monomer, consisting of a mixture of multifunctional monomers;

(iii) an organic solvent; and
(iv) an alkali metal salt electrolyte.
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(1) A solid electrolyte **battery** which comprises: positive (1) and negative (3) **electrode** active substances in contact with the solid electrolyte (2) composition (I).
(2) A **battery** production process which involves:
(i) preparing a **laminate** of active substance-bound positive and negative **electrodes**, collectors and an electrolyte;
(ii) sealing the **laminate** to obtain a **battery**; and optionally
(iii) treating one or both organic-binder bound **electrodes** with a liquid capable of dissolving the binder.
USE - For solid electrolyte **battery** (claimed) e.g. secondary **battery** used as power source for portable devices such as cellular phone, laptop PCs, note book computers.
ADVANTAGE - Electrolyte has high mechanical strength and ionic conductivity. **Battery** has high discharge rate.
DESCRIPTION OF DRAWING(S) - The figure shows a schematic cross section of a solid electrolyte **battery.**
Positive and negative active substances 1, 3
Solid electrolyte 2
Dwg.1/5

FS CPI EPI
FA AB; GI
MC CPI: A03-A00A; A10-E07B; A12-E06A; L03-E01C
EPI: X16-B01; X16-J01A

L69 ANSWER 47 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:708038 CAPLUS
DN 131:312444
ED Entered STN: 05 Nov 1999
TI **Cathode** plates for secondary **lithium** ion **batteries** and **batteries** using them
IN Nakai, Kenji; Tomoto, Koji; Iida, Toyoshi; Makino, Satoshi; Kiyokawa, Tadashi; Kiyokawa, Hajime; Takashima, Masayuki; Yonezawa, Susumu
PA Shin-Kobe Electric Machinery Co., Ltd., Japan; Tanaka Kagaku Kenkyusho K. K.; Kyokawa Mekki Kogyo K. K.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-04; H01M004-58; H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 11307083	A2	19991105	JP 1998-109300	19980420
PRAI	JP 1998-109300		19980420		

AB The title **cathode** plates comprise active mass powder represented

as LixMyO2 (M = **Co**, **Ni**, Mn, **V**, **Fe**, or **Ti**; x = 0.2-2.5; y = 0.8-1.25) **coated** on current collectors, where **electroconductive** substances are fixed as thin films on surfaces of the active mass powder. Also claimed are **cathode** plates containing active mass layers comprising the above active mass power, nonaq. electrolyte solns. containing LiPF6 dissolved in ethylene carbonate and di-Et carbonate, and poly(vinylidene fluoride) formed on Al **foil** current collectors, where the active mass powder is coated with 0.1-20 volume% conductive substances. Claimed **batteries** are equipped with the above **cathode** plates and **Li-intercalating** C **anodes**. The **cathode** plates provide high discharge capacity without decreasing energy d.

ST **lithium cobalt** oxide **cathode** conductive coating; **battery lithium** mixed oxide **cathode**

IT Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(binders; **lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

IT **Battery cathodes**
Sputtering
(**lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

IT Secondary **batteries**
(**lithium**; **lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

IT Vapor deposition process
(vacuum; **lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

IT 24937-79-9
RL: DEV (Device component use); USES (Uses)
(binders; **lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

IT **7429-90-5**, Aluminum, uses **7440-02-0**, **Nickel**, uses 7440-44-0, Carbon, uses 7440-57-5, Gold, uses
RL: DEV (Device component use); USES (Uses)
(coatings; **lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
RL: DEV (Device component use); USES (Uses)
(**electrolyte** solvents; **lithium** mixed oxide **coated** with conductive substances for **cathodes** in **batteries**)

IT 21324-40-3, **Lithium** hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(**electrolytes**; **lithium** mixed oxide **coated** with conductive substances for **cathodes** in **batteries**)

IT 11113-67-0, **Iron lithium** oxide 11126-15-1, **Lithium vanadium** oxide 39300-70-4, **Lithium nickel** oxide 39302-37-9, **Lithium titanium** oxide 39457-42-6, **Lithium** manganese oxide 160152-00-1,

Cobalt lithium oxide (CoLi1.0102)
RL: DEV (Device component use); USES (Uses)
(**lithium** mixed oxide coated with conductive substances for **cathodes** in **batteries**)

L69 ANSWER 48 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1999-601372 [51] WPIX
DNN N1999-443348 DNC C1999-175050
TI **Cathode** material for **lithium** secondary cells.
DC A26 A85 L03 X16
IN DAVIES, B L; MOKUDAI, H; MURATA, M; OGURA, S
PA (AXIV-N) AXIVA GMBH; (AVET) AVENTIS RES & TECHNOLOGIES GMBH & CO KG; (CELA) CELANESE VENTURES GMBH; (DAVI-I) DAVIES B L; (MOKU-I) MOKUDAI H; (MURA-I) MURATA M; (OGUR-I) OGURA S
CYC 23
PI WO 9950922 A1 19991007 (199951)* EN 31p H01M004-36
RW: AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
W: CA JP KR US
JP 11329413 A 19991130 (200007) 16p H01M004-02
EP 1068647 A1 20010117 (200105) EN H01M004-36
R: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
KR 2001052228 A 20010625 (200173) H01M004-02
US 2002061441 A1 20020523 (200239) H01M004-58
JP 2002519826 W 20020702 (200246) 37p H01M004-36
US 6703163 B2 20040309 (200418) H01M004-58
ADT WO 9950922 A1 WO 1999-EP1945 19990323; JP 11329413 A JP 1998-134350 19980428; EP 1068647 A1 EP 1999-911810 19990323, WO 1999-EP1945 19990323; KR 2001052228 A KR 2000-710851 20000929; US 2002061441 A1 US 2001-846066 20010501; JP 2002519826 W WO 1999-EP1945 19990323, JP 2000-556592 19990323; US 6703163 B2 Cont of US 1998-52365 19980331, Cont of WO 1999-EP1945 19990323, Cont of US 2000-647138 20000927, US 2001-846066 20010501
FDT EP 1068647 A1 Based on WO 9950922; JP 2002519826 W Based on WO 9950922
PRAI JP 1998-134350 19980428; US 1998-52365 19980331
IC ICM H01M004-02; H01M004-36; H01M004-58
ICS C01B031-02; H01M004-60; H01M004-62; H01M010-40
AB WO 9950922 A UPAB: 19991207
NOVELTY - An **electrode** comprises (a) an electrically conductive matrix containing a disulfide group, in which an S-S bond of the disulfide group is cleaved by electrochemical reduction and reformed by electrochemical oxidation; and (b) carbon nanotubes, which are dispersed in the matrix.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:-

(1) a **battery** precursor comprising a **cathode** of the above **electrode** material, which is **coated** on to a **cathode** current collector; and

(2) a **lithium battery** comprising a **cathode** of the above **electrode** material, an **anode** having an active material for releasing **lithium** ions and an **electrode** placed between the **cathode** and **anode**.

USE - As the **cathode** material in a secondary

lithium battery.

ADVANTAGE - Compared to other carbon materials, a smaller amount of carbon nanotubes provides the necessary electrical conductance and mechanical strength, and both of these properties are improved. The **electrode** precursor has improved adhesion to the current collector.

Dwg.0/4

FS CPI EPI
FA AB
MC CPI: A12-E06A; L03-E01B5; L03-E03
EPI: X16-B01F1; X16-E01C; X16-E02

L69 ANSWER 49 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1999-534538 [45] WPIX
DNN N1999-397243 DNC C1999-156710
TI Outer cladding case of **lithium** polymer secondary **battery** - comprises **lamination sheet** and adhesive.
DC A85 L03 X16
PA (MATU) MATSUSHITA DENKI SANGYO KK
CYC 1
PI JP 11233133 A 19990827 (199945)* 6p H01M010-04
ADT JP 11233133 A JP 1998-35958 19980218
PRAI JP 1998-35958 19980218
IC ICM H01M010-04
ICS H01M002-02; H01M002-22; H01M006-02; H01M010-40
AB JP 11233133 A UPAB: 19991103
NOVELTY - Positive and negative **electrode** leads (8,9) are drawn out from **lamination electrode** (4) which **laminates** positive and negative **electrode plates** through a separator. A pair of **lamination sheet** is wound on the **lamination electrode** to seal it and form the outer cladding case. Adhesive thermo-bonding property resin (12-14) is coated on the sealing site, where the leads are drawn out.

USE - For **lithium** polymer secondary **battery.**

ADVANTAGE - Sealing with adhesive thermo-bonding property resin prevents electrolyte leak, thus reliable outer cladding case is offered, then remains stable for long period.

DESCRIPTION OF DRAWING(S) - The figure shows surface block diagram of **battery** structure. (4) **Lamination electrode**; (8,9) Positive and negative **electrode** leads; (12-14) Thermo-bonding property resin.

Dwg.1/5

FS CPI EPI
FA AB; GI
MC CPI: A12-E06C; L03-E01D; L03-E03
EPI: X16-A; X16-B01; X16-B01F; X16-F01; X16-F03

L69 ANSWER 50 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1999-484461 [41] WPIX
DNN N1999-361490 DNC C1999-142452
TI **Lithium foil lamination** method for manufacture of non-aqueous electrolyte secondary **batteries** -

involves rolling and adhering heated **lithium foil** on surface of **electrode plate** of negative **electrode.**

DC L03 X16
PA (NIST) JAPAN STORAGE BATTERY CO LTD
CYC 1
PI JP 11204144 A 19990730 (199941)* 8p H01M010-40
ADT JP 11204144 A JP 1998-5153 19980113
PRAI JP 1998-5153 19980113
IC ICM H01M010-40
ICS H01M004-04; H01M010-38
AB JP 11204144 A UPAB: 19991103
NOVELTY - Heated **lithium foil** (50) is rolled and adhered on the surface of an **electrode plate** (20) of a negative **electrode.** Then, the **electrode plates** of the positive and negative **electrodes** are **laminated** via a separator.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for non-aqueous electrolyte secondary **battery** manufacturing apparatus.

USE - For manufacture of non-aqueous electrolyte secondary **batteries.**

ADVANTAGE - Enables to adhere **lithium foil** on surface of **electrode plate** uniformly and effectively at high speed and thereby improving productivity. Prevents formation of **lithium** nitride by performing heat rolling of **lithium** in atmosphere without nitrogen.

DESCRIPTION OF DRAWING - The figure shows fragmentary sectional view of **lithium foil lamination** apparatus. (20) **Electrode plate**; (50) **Lithium foil.**

Dwg.4/11
FS CPI EPI
FA AB; GI
MC CPI: L03-E01B5; L03-J
EPI: X16-B01F1; X16-B01X; X16-E01G

L69 ANSWER 51 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:351659 CAPLUS
DN 129:30156
ED Entered STN: 10 Jun 1998
TI Secondary nonaqueous electrolyte **batteries**
IN Ikuyama, Seiichi
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-62; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1
PATENT NO. KIND DATE APPLICATION NO. DATE

PI	JP 10149810	A2	19980602	JP 1996-326126	19961120
PRAI	JP 1996-326126		19961120		

AB The **batteries** use **cathodes** and **anodes** having an active mass layer coated on a collector, where the **cathode** and/or the **anode** has an adhesion enhancing coating layer between the active mass layer. The adhesion enhancing coating is preferably polyurethane or epoxy resin and may contain a polyisocyanate crosslinking agent or a coupling agent, the **cathode** has a **Li** transition metal oxide on an Al collector **foil**, and the **anode** has a **Li intercalating** carbonaceous material on a **Cu** collector **foil.**

ST **lithium battery electrode** adhesion enhancing **coating**; polyurethane **lithium battery electrode** adhesion enhancing; epoxy resin **lithium battery electrode**

IT Adhesives
Battery electrodes
(compns. of adhesion enhancing **coatings** for **electrode** active mass layers on collectors in secondary **lithium batteries**)

IT Polyurethanes, uses
RL: MOA (Modifier or additive use); USES (Uses)
(compns. of adhesion enhancing **coatings** for **electrode** active mass layers on collectors in secondary **lithium batteries**)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(compns. of adhesion enhancing coatings for carbon **anodes** with **copper** collectors in secondary **lithium batteries**)

IT 2897-60-1, Kbe 402 3068-76-6, KBM 573 7440-44-0, Carbon, uses 39278-79-0, Coronate L 65460-53-9, Kr46b 84420-02-0, Epiclon H 201-60BT 97621-95-9, Epiclon H 157 176303-98-3, Epiclon b 3150
RL: MOA (Modifier or additive use); USES (Uses)
(compns. of adhesion enhancing **coatings** for **electrode** active mass layers on collectors in secondary **lithium batteries**)

IT **7429-90-5**, Aluminum, uses **12190-79-3**, **Cobalt lithium** oxide (CoLiO2)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(compns. of adhesion enhancing coatings for **lithium** cobaltate **cathodes** with aluminum collectors in secondary **lithium batteries**)

L69 ANSWER 52 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:126852 CAPLUS
DN 128:182603
ED Entered STN: 02 Mar 1998
TI Spiral-type **sheet electrodes** suitable for

lithium secondary **battery anodes**

IN Yamaguchi, Itsuwa; Ito, Shinsuke
PA Fuji Electrochemical Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-02
ICS H01M004-58; H01M004-62
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 10055798	A2	19980224	JP 1996-209882	19960808
PRAI JP 1996-209882		19960808		

AB The title **electrodes** are prepared by (1) **coating** slurries containing active mass and CM-cellulose as a binder on current collector **sheets**, (2) coiling the **sheets** with separators, wherein polyethylene oxide is added into the slurries as a softener. The **electrodes** containing carbonaceous materials are used for **Li** secondary **battery anodes.** By using aqueous solvents in preparing the slurries, the slurries are unflammable and safe, and by adding polyethylene oxide, the **laminates** can be coiled easily.

ST **lithium** spiral **battery anode** fabrication binder; carbonaceous **anode battery** spiral coiling; CM cellulose binder **lithium battery anode**; polyethylene oxide softener **lithium battery anode**

IT Binders
(CM-cellulose; spiral-type **sheet electrodes** suitable for **Li** secondary **battery anodes**)

IT Softening agents
(polyethylene oxide; spiral-type **sheet electrodes** suitable for **Li** secondary **battery anodes**)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(softener; in spiral-type **sheet electrodes** suitable for **Li** secondary **battery anodes**)

IT **Battery anodes**
(spiral-type **sheet electrodes** suitable for **Li** secondary **battery anodes**)

IT 9004-32-4, Carboxymethylcellulose sodium salt
RL: DEV (Device component use); TEM (Technical or engineered material use); USES (Uses)
(binder; in spiral-type **sheet electrodes** suitable for **Li** secondary **battery anodes**)

IT 25322-68-3, Polyethylene oxide
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)

(softener; in spiral-type **sheet electrodes** suitable for **Li** secondary **battery anodes**)

L69 ANSWER 53 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1999-020193 [02] WPIX
DNN N1999-016494 DNC C1999-006232
TI Non-aqueous electrolyte secondary **battery** - has **lithium foil laminated sheet** which is formed over **electrode** mixture on collector of **cathode** plate to form **cathode laminated** board.
DC L03 X16
PA (NIST) JAPAN STORAGE BATTERY CO LTD
CYC 1
PI JP 10289708 A 19981027 (199902)* 5p H01M004-02
ADT JP 10289708 A JP 1997-94026 19970411
PRAI JP 1997-94026 19970411
IC ICM H01M004-02
ICS H01M004-04; H01M010-40
AB JP 10289708 A UPAB: 19990113
The **battery** has an **anode** pole board and a **cathode laminated** board sandwiching a separator. The **cathode laminated** board has a **lithium foil lamination sheet** (50) which is fixed to the surface of an **electrode** mixture (23), over a collector (22) of the **cathode** plate (20). The **lithium foil lamination sheet** comprises of **lithium foil** (52) formed on a base film (51).
ADVANTAGE - Diffuses **electrode** mixture uniformly. Supplies **lithium** of required amount. Increases capacity of secondary **battery**. Has extremely thin **lithium foil**.
Dwg.5/5
FS CPI EPI
FA AB; GI
MC CPI: L03-E01B5
EPI: X16-B01F1; X16-E01; X16-E01G

L69 ANSWER 54 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1998-574020 [49] WPIX
DNN N1998-447192 DNC C1998-172167
TI **Lithium** secondary **battery** - includes **electrodes** having **coating** film comprising active material and binder containing denatured polyvinylidene fluoride group.
DC A85 L03 X16
PA (HITM) HITACHI MAXELL KK
CYC 1
PI JP 10255760 A 19980925 (199849)* 7p H01M004-02
ADT JP 10255760 A JP 1997-81987 19970314
PRAI JP 1997-81987 19970314
IC ICM H01M004-02
ICS H01M004-62; H01M010-40
AB JP 10255760 A UPAB: 19981210
The **battery** includes a **sheet** like **anode** (1)

and **cathode** (2) inbetween which a separator (3) is enclosed. The **anode** or the **cathode** includes a coating film comprising active material and binder that is **laminated** on an electrically conductive base. The binder includes denatured polyvinylidene fluoride group polymer obtained by copolymerisation of monoester of unsaturated dibasic acid and vinylidene fluoride.

ADVANTAGE - Prevents reduction in **battery** capacity.

Dwg.1/2

FS CPI EPI
FA AB; GI
MC CPI: A04-E10B; A04-F07; A12-E06A; L03-E01B5
EPI: X16-B01F1; X16-E01; X16-E09

L69 ANSWER 55 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:557400 CAPLUS
DN 127:222943
ED Entered STN: 01 Sep 1997
TI **Batteries** and secondary **lithium batteries**
IN Nakai, Kenji; Takashima, Masayuki
PA Shin-Kobe Electric Machinery Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-66
ICS H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09213338	A2	19970815	JP 1996-13543	19960130
PRAI JP 1996-13543		19960130		

AB The **batteries** use collectors composed of a thin conductive film coated polymer film or **sheet** for their **cathodes** and/or **anodes.** The **batteries** use **cathodes** containing a **Li intercalating** material applied on a **cathode** collector and **anodes** containing a **Li intercalating** carbonaceous material applied on an **anode** collector, where either or both collectors are a conductive film coated polymer film or **sheet.** The conductor coating is preferably formed by vapor deposition. These **batteries** are lightwt. and have high energy d.

ST **lithium battery electrode** collector; **battery electrode** conductor **coated** polymer collector; vapor **deposition electrode** polymer collector **coating**

IT **Battery electrodes**
(collectors from conductive film **coated** poly(ethylene terephthalate) **sheets** for **electrodes** in **batteries**)

IT Polyesters, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical

process); PROC (Process); USES (Uses)
(collectors from conductive film coated poly(ethylene terephthalate) **sheets** for **electrodes** in **batteries**)

IT Carbonaceous materials (technological products)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(collectors from **copper** coated poly(ethylene terephthalate) **sheets** for carbonaceous **anodes** in secondary **lithium batteries**)

IT Vapor deposition process
(manufacture of conductive film coated poly(ethylene terephthalate) **sheet** collectors by vapor **deposition** for **electrodes** in **batteries**)

IT **7429-90-5**, Aluminum, uses **12190-79-3**, **Cobalt lithium** oxide (CoLiO2)
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(collectors from aluminum coated poly(ethylene terephthalate) **sheets** for **lithium** cobaltate **cathodes** in **batteries**)

IT 25038-59-9, Poly(ethylene terephthalate), uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(collectors from conductive film coated poly(ethylene terephthalate) **sheets** for **electrodes** in **batteries**)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(collectors from **copper** coated poly(ethylene terephthalate) **sheets** for carbonaceous **anodes** in secondary **lithium batteries**)

L69 ANSWER 56 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:388791 CAPLUS
DN 127:37223
ED Entered STN: 21 Jun 1997
TI Nonaqueous electrolyte secondary **batteries** with current collectors containing metal-coated resin **sheets**
IN Sugano, Naoyuki
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-66
ICS H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09120818	A2	19970506	JP 1995-279227	19951026
PRAI	JP 1995-279227		19951026		

AB Claimed **batteries**, using **cathodes** containing LixMO2 (M = **Ni**, **Co**, **Fe**, and/or Mn) and **Li** or **Li-intercalating anodes**, have current collectors comprising resin **sheets** having conductive metal surfaces. The **batteries** have high energy d.

ST **electrode** current collector metal **coated** resin; **lithium battery electrode** current collector

IT **Battery anodes**
Battery cathodes
(current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Polyesters, uses
Polyimides, uses
Polyolefins
RL: DEV (Device component use); USES (Uses)
(current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Secondary **batteries**
(**lithium**; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Polyketones
Polyketones
RL: DEV (Device component use); USES (Uses)
(polyether-; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT Polyethers, uses
Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polyketone-; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(**anode**; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT **12190-79-3**, **Lithium cobalt** oxide (LiCoO2)
RL: DEV (Device component use); USES (Uses)
(**cathode**; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT 9020-32-0, Polyethylene naphthalate 9020-73-9 24968-12-5, Polybutylene terephthalate 25038-59-9, Polyethylene terephthalate, uses 26062-94-2, Polybutylene terephthalate
RL: DEV (Device component use); USES (Uses)
(current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

IT **7429-90-5**, Aluminum, uses **7440-02-0**, **Nickel**, uses **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); USES (Uses)
(film; current collectors containing metal-coated resin **sheets** for nonaq. **batteries** with high energy d.)

L69 ANSWER 57 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:421170 CAPLUS

DN 127:68506
ED Entered STN: 09 Jul 1997
TI Spiral type **lithium batteries** and their manufacture
IN Arae, Shuichi; Izumi, Akihide; Ishiguro, Yasuhiro; Suzuki, Masaaki; Murakami, Yukiyoshi; Nakada, Hiroyuki
PA Zaidan Hojin Ships and Oceans, Japan; Fuji Electrochemical Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-04
ICS H01M006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09120803	A2	19970506	JP 1995-275842	19951024

PRAI JP 1995-275842 19951024

AB The **batteries** have a case also serving as a terminal for 1 **electrode**, an **electrode** stack and an electrolyte in the case, a cover sealed by an insulator gasket at the case, a ring welding plate contacting the cover, a vertical elec. lead plate forming a shortest passage between the other **electrode** and the the welding **plate**; where the cover has a **laminate** film and a packing inserted successively in a cap shaped terminal **plate** for the other **electrode.** The **batteries** are prepared by inserting the **electrode** stack having the lead **plate** in the case, forming a bottle neck around the open end of the case, placing the welding plate inside the sealing gasket, welding the plate to the lead **plate**, injecting the **electrolyte**, inserting the **laminate sheet** and packing in the cap shaped **electrode** terminal, bending the edge of the cap shaped terminal to hold the **laminate sheet** and packing to form the cover, placing the cover on top of the welding plate, and sealing the case.

ST **lithium** spiral **battery** structure manuf
IT Primary **batteries**
(structure and manufacture of spiral type **lithium batteries**)

L69 ANSWER 58 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1997:195591 CAPLUS
DN 126:188487
ED Entered STN: 26 Mar 1997
TI Solid polymer electrolyte **batteries** with improved current collectors
IN Kano, Koji; Tsucha, Kenji; Myasaka, Kojiro; Anzai, Kazuo
PA Toshiba Battery, Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M004-64

ICS H01M004-02; H01M004-04; H01M004-66; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09022699	A2	19970121	JP 1995-171134	19950706
PRAI JP 1995-171134		19950706		

AB The **batteries** use **cathodes** having an active mass mixture containing a nonaq. electrolyte solution and a polymer retaining the solution applied on an Al **foil** collector, an **anode** having a **Li intercalating** carbonaceous material mixed with the electrolyte solution on a collector, and an electrolyte membrane containing the electrolyte solution and the polymer between the **electrodes**; where the Al **foil** has roughened surface facing the active mass layer or has ≤5% fine perforation. The **batteries** may also use **Cu anode** collectors having roughened surface facing the **anode** active mass layer or having ≤5% fine perforation in place of or in addition to the surface roughened or perforated **cathode** collectors. The collectors may be coated with a conductive polymer layer. These **electrodes** have good adhesion of the active mass to the collectors.

ST polymer electrolyte **battery electrode** collector; **lithium battery electrode** collector treatment; aluminum **cathode** collector treatment **battery**; **copper anode** collector treatment **battery**

IT Carbon fibers, uses
RL: DEV (Device component use); USES (Uses)
(**lithium intercalating** carbon fiber **anodes** using **copper** collectors with roughened surface or fine perforations or conductive coatings for **batteries**)

IT **Battery electrodes**
(metal collector **foils** with roughened surface or fine perforations or conductive **coatings** for secondary polymer **electrolyte lithium batteries**)

IT **7429-90-5**, Aluminum, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(aluminum collector **foils** with roughened surface or fine perforations or conductive coatings for **lithium** manganese oxide **cathodes** for **batteries**)

IT 24937-79-9, Poly(vinylidene fluoride)
RL: MOA (Modifier or additive use); USES (Uses)
(conductive coatings containing acetylene black and poly(vinylidene fluoride) for **electrode** collectors in solid polymer electrolyte **batteries**)

IT **7440-50-8**, **Copper**, uses
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(**copper** collector **foils** with roughened surface or fine perforations or conductive coatings for **lithium intercalating** carbonaceous **anodes** for **batteries**)

IT 12057-17-9, **Lithium** manganese oxide (LiMn2O4)
RL: DEV (Device component use); USES (Uses)
(**lithium** manganese oxide **cathodes** using aluminum collector **foils** with roughened surface or fine perforations or conductive coatings for **batteries**)

L69 ANSWER 59 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1997-412580 [38] WPIX
DNN N1997-343773
TI Non-aqueous **electrode plate** for **electrolyte** secondary **battery** - includes composition of active material layer varying along thickness direction.
DC X16
PA (NIPQ) DAINIPPON PRINTING CO LTD
CYC 1
PI JP 09185960 A 19970715 (199738)* 6p H01M004-02
ADT JP 09185960 A JP 1995-352416 19951228
PRAI JP 1995-352416 19951228
IC ICM H01M004-02
ICS H01M004-04; H01M004-66
AB JP 09185960 A UPAB: 19970922
The non-aqueous **electrode plate** includes a metallic **foil** collector object with **laminated** active material layer comprising binder material. The composition of the active material layer varies in the thickness direction.
USE - For **lithium** ion secondary **battery.**
ADVANTAGE - Excels in adhesion nature.
Dwg.0/0
FS EPI
FA AB
MC EPI: X16-B01F1; X16-E01; X16-E02

L69 ANSWER 60 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:537626 CAPLUS
DN 125:173346
ED Entered STN: 10 Sep 1996
TI **Coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors, the **batteries** and supercapacitors containing the **electrodes**, and manufacture of the **electrodes**
IN Andrieu, Xavier; Josset, Laurence
PA Saft, Fr.
SO PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DT Patent
LA French
IC ICM H01M002-16
ICS H01M004-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI WO 9620504 A1 19960704 WO 1995-FR1742 19951227
W: JP, US
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
FR 2729009 A1 19960705 FR 1994-15790 19941228
FR 2729009 B1 19970131
EP 748522 A1 19961218 EP 1995-943284 19951227
EP 748522 B1 20010103
R: DE, FR, GB
JP 09510045 T2 19971007 JP 1995-520266 19951227
US 5811205 A 19980922 US 1996-700381 19960816
PRAI FR 1994-15790 A 19941228
WO 1995-FR1742 W 19951227

AB Of the **electrodes**, comprising a 1st electron-conducting porous layer ≥1 surfaces of which are coated with a 2nd microporous polymeric material, the 2nd coating is obtained by impregnating the 1st layer with a solution of the polymer, and coagulating the polymer. For the supercapacitors, the 1st **coating** contains an **electrochem**. active material selected from activated C and transition metal oxides, and the 2nd coating consists of polyvinylidene fluoride (I). For the **batteries**, the 1st **coating** contains an **electrochem.** active material selected from materials capable of being **intercalated** with alkali metal ions, and the 2nd coating consists of I. The **coated electrodes** are manufactured by forming the 1st coating, coating the 1st coating with a film of a solution of a polymer dissolved in a 1st volatile solvent, contacting the film with a volatile antisolvent miscible with the 1st solvent, and drying the **electrode** to remove the two solvents. The **electrode** of a button-type **battery** consisted of a **Cu foil** coated with a paste containing ≥90 weight% graphite and balance I. The 2nd coating opposite the current collector was formed by applying a solution containing 12.5 weight% I and balance Et3PO4, and the coagulating the polymer in water. The coating was dried at 35 and 120° an had thickness 50 μm and porosity 75%. The **electrode** was impregnated with an electrolyte solution consisting of a mixture of 1.5M **Li** trifluoromethanesulfonimide and 0.1M LiClO4 in a nonaq. solvent consisting of propylene carbonate 20, ethyleen carbonate 20, and di-Me carbonate 60%.

ST **electrode coating battery** supercapacitor; porous carbon **coating electrode**; polymer porous coating carbon; polyvinylidene fluoride polymer coating; solvent antisolvent polymer coating; nonaq electrolyte **battery electrode**; **lithium** trifluoromethanesulfonimide perchlorite electrolyte

IT Transition metal oxides
RL: TEM (Technical or engineered material use); USES (Uses)
(**coatings**; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT **Battery electrolytes**
(nonaq.; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT **Batteries**, secondary

Coating process
Crosslinking agents
Solvents
Wetting agents
(porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT Polyethers, uses
Polymers, uses
Polysulfones, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT Solvents
(anti-, porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT **Electrodes**
(**battery**, porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT Inclusion compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(**intercalation**, alkali metal ion-**intercalated**; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT Alkenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymers, porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 7440-44-0, Carbon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(activated, **coating**; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 9003-39-8, Polyvinylpyrrolidone
RL: TEM (Technical or engineered material use); USES (Uses)
(admixts. with poly(vinylidene fluoride); porous polymer-coated **electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 56-81-5, Glycerin, uses 64-17-5, Ethanol, uses 75-05-8, Acetonitrile, uses 107-21-1, Ethyleneglycol, uses 108-32-7, Propylene carbonate 141-78-6, Ethyl acetate, uses 7732-18-5, Water, uses 30899-19-5, Pentanol 35296-72-1, Butanol
RL: NUU (Other use, unclassified); USES (Uses)
(antisolvent; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT **7440-50-8**, **Copper**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**electrode**; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 90076-65-6
RL: TEM (Technical or engineered material use); USES (Uses)

(nonaq. electrolyte solns. containing **lithium** perchlorate and; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 7791-03-9, **Lithium** perchlorate
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte solns. containing **lithium** trifluoromethanesulfonimide and; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 67-64-1, Acetone, uses 127-19-5, Dimethylacetamide
RL: NUU (Other use, unclassified); USES (Uses)
(porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 9002-86-2, Poly(vinyl chloride) 9004-35-7, Cellulose acetate 9011-14-7, Polymethylmethacrylate 9011-17-0, Hexafluoropropene-vinylidene fluoride copolymer 24937-79-9, Poly(vinylidene fluoride) 25213-24-5, Vinyl alcohol-vinyl acetate copolymer 25684-76-8, Tetrafluoroethene-vinylidene fluoride copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

IT 67-68-5, DMSO, uses 68-12-2, Dimethylformamide, uses 75-09-2, Dichloromethane, uses 78-40-0, Triethyl phosphate 108-94-1, Cyclohexanone, uses 680-31-9, Hexamethylphosphoramide, uses 872-50-4, N-Methylpyrrolidone, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; porous polymer-**coated electrodes** for non-aqueous liquid electrolyte-type **batteries** and supercapacitors)

L69 ANSWER 61 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1996-279842 [29] WPIX
DNN N1996-235317 DNC C1996-088825
TI Porous metallic **sheet battery electrode** substrate - in which the **sheet** is formed of intertwined metallic fibres.
DC L03 M22 P53 X16
IN SUGIKAWA, H
PA (SUGI-I) SUGIKAWA H; (KATA-N) KATAYAMA SPECIAL IND LTD; (KATA-N) KATAYAMA TOKUSHU KOGYO KK
CYC 16

PI	EP 717457	A2 19960619 (199629)*	EN	41p	H01M004-74
	R: BE CH DE ES FR GB IT LI NL SE				
	CA 2163819	A 19960529 (199638)			H01M004-80
	JP 08213026	A 19960820 (199643)		15p	H01M004-80
	EP 717457	A3 19970108 (199712)			H01M004-74
	CN 1127433	A 19960724 (199749)			H01M004-74
	EP 717457	B1 20000202 (200011)	EN		H01M004-74
	R: BE CH DE ES FR GB IT LI NL SE				
	DE 69514900	E 20000309 (200019)			H01M004-74
	US 6110417	A 20000829 (200043)			B22F003-10
	CA 2254551	C 20000822 (200052)	EN		H01M004-80
	CA 2163819	C 20001226 (200104)	EN		H01M004-80

KR 226040 B1 19991015 (200110) H01M004-04
KR 242814 B1 20000315 (200122) H01M004-04
TW 492214 A 20020621 (200323) H01M010-38
JP 2003193110 A 20030709 (200354) 24p B22F003-11
ADT EP 717457 A2 EP 1995-118659 19951127; CA 2163819 A CA 1995-2163819 19951127; JP 08213026 A JP 1995-295734 19951114; EP 717457 A3 EP 1995-118659 19951127; CN 1127433 A CN 1995-119623 19951128; EP 717457 B1 EP 1995-118659 19951127; DE 69514900 E DE 1995-614900 19951127, EP 1995-118659 19951127; US 6110417 A Div ex US 1995-563456 19951128, Div ex US 1998-108120 19980701, US 1999-258866 19990226; CA 2254551 C Div ex CA 1995-2163819 19951127, CA 1995-2254551 19951127; CA 2163819 C CA 1995-2163819 19951127; KR 226040 B1 KR 1995-44143 19951128; KR 242814 B1 Div ex KR 1995-44143 19951128, KR 1999-18808 19990525; TW 492214 A TW 1997-106586 19951124; JP 2003193110 A Div ex JP 1995-295734 19951114, JP 2002-331258 19951114
FDT DE 69514900 E Based on EP 717457
PRAI JP 1994-293286 19941128
REP No-SR.Pub; 4.Jnl.Ref; DE 2720278; EP 523724; JP 01320762; JP 05025509; JP 56145668; JP 59163754; US 3702019; US 3835514; US 3895960; US 4222977; US 4913737; WO 9535177
IC ICM B22F003-10; B22F003-11; H01M004-04; H01M004-74; H01M004-80; H01M010-38
ICS B22F001-00; B22F003-00; H01M004-24; H01M004-26; H01M004-32; H01M004-82

AB EP 717457 A UPAB: 19960724
A porous metallic **sheet**, to be used as an **electrode** substrate of a **battery**, has a porous fibrous structure or a three-dimensional net-shaped structure in which a framework surrounding pores of the porous fibrous structure or those of the three-dimensional net-shaped structure is formed of metallic fibres made of metallic powders.

The porous metallic **sheets** are formed by intertwining metallic fibres formed by convergent drawing, metallic fibre spinning, metallic **foil** cutting or by chattering vibration, and consisting of short fibres from 1 mm to 60 mm.

The porous fibre structure consists of a nonwoven, a woven, a knitted, a felt, a screen-shaped, an expanded and a net-shaped **sheet** and the three-dimensional net-shaped structure consists of a foamed, a sponge-like and a honeycomb-shaped **sheet.**

Also claimed are **sheets** with circular, rectangular or rhombic through-holes with an **electrode plate** lead formed in the non-through-hole region, similarly or differently configured **sheets laminated** to one another, forming an **electrode plate** of a **nickel** hydrogen, **nickel** cadmium and a primary or secondary **lithium** **battery** by applying an active substance, and methods of manufacturing a porous metallic **sheet.**

In the porous metallic **sheet** the diameters of the metallic powders are in a range from 0.1 mum to 5 mum, the diameters of the metallic fibres are in a range from 1.0 mum to 100 mum, and the thickness of the porous fibrous structure or that of the three-dimensional net-shaped structure is in a range from 5 mum to 5000 mum.

USE - A porous metallic **sheet** to be used as the substrate of a **battery electrode** and the **electrode plate.**

ADVANTAGE - The thickness of the porous metallic **sheet** and the percentage of pores can be easily controlled. The thinner the porous metallic **sheet** the less expensive is the material cost. The active substance is not removed in subsequent processes. A **sheet** having a high tensile force can be obtained. The **sheet** allows electric current to flow reliably, serving as a highly conductive substrate. The **sheet** has a lower resistance in ohms/mm than a conventional punched metal **sheet.** Through-holes and leads can be formed simultaneously with fibre intertwining enabling the **sheet** to be manufactured at low cost.

Dwg.0/28

FS CPI EPI GMPI
FA AB
MC CPI: L03-E01B; M22-H01; M22-H03B; M22-H03G
EPI: X16-E02

L69 ANSWER 62 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:733314 CAPLUS
DN 123:118540
ED Entered STN: 12 Aug 1995
TI Secondary nonaqueous **batteries**
IN Kashimura, Toshihide; Shionuma, Keiji
PA Sony Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M010-40
ICS H01M004-02; H01M010-04
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 07130394	A2	19950519	JP 1993-272852	19931029
PRAI JP 1993-272852		19931029		

AB The **batteries** use an **anode** and a **cathode** having an active mass applied on both sides of a metal **foil,** where ≥1 of the **electrodes** have a resin layer **coated** on the edge of the **electrode** along its longitudinal direction. This structure prevents short circuit in the **batteries.**

ST **battery electrode** resin **coating**
IT **Cathodes**
(**battery, cathodes** with resin coated edges for **batteries**)
IT **Electrodes**
(**battery, electrodes** with resin **coated** edges for secondary nonaq. **batteries**)
IT **Anodes**

(**battery**, **lithium intercalating** carbon **anodes** with resin coated edges for **batteries**)

IT **12190-79-3**, **Lithium cobalt** oxide (LiCoO2)
RL: DEV (Device component use); USES (Uses)
(**cathodes** with resin coated edges for **batteries**)

IT 9003-42-3, Poly(ethyl methacrylate) 24937-79-9, Pvdf
RL: DEV (Device component use); USES (Uses)
(**electrodes** with resin **coated** edges for **batteries**)

IT **7439-93-2**, **Lithium**, uses 7440-44-0, Carbon, uses
RL: DEV (Device component use); USES (Uses)
(**lithium intercalating** carbon **anodes** with resin coated edges for **batteries**)

L69 ANSWER 63 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:438203 CAPLUS
DN 122:192514
ED Entered STN: 24 Mar 1995
TI Manufacture of **sheet**-like plate and **batteries** using this plate.
IN Fukumura, Kenichi; Noda, Yoshiaki
PA Fuji Photo Film Co., Ltd., Japan
SO Eur. Pat. Appl., 21 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM H01M004-04
ICS B05D001-26; B05C005-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 639865	A1	19950222	EP 1994-108947	19940610
	EP 639865	B1	19980311		
	R: DE, FR, GB				
	JP 07065816	A2	19950310	JP 1994-154299	19940614
	US 5674556	A	19971007	US 1996-688695	19960729
PRAI	JP 1993-143531		19930615		
	US 1994-258664		19940610		

AB The plate is produced by discharging an **electrode** material **coating** solution from an extrusion-type slot die and coating the solution on an elec.-conductive support running around a backup roll. The **battery** comprises a **cathode**, an **anode**, and an electrolyte. Both, the **cathode** and **anode** are produced by the invention method.

ST **battery sheet** like **electrode** manuf

IT **Batteries**, secondary
(manufacture of **sheet**-like)

IT Coke
RL: DEV (Device component use); USES (Uses)
(petroleum, manufacture of **sheet**-like **battery anodes** of)

IT **7439-93-2**, **Lithium**, uses 7440-09-7, Potassium, uses
7440-23-5, Sodium, uses
RL: DEV (Device component use); USES (Uses)
(manufacture of **sheet**-like **battery anodes**
intercalatable by)
IT 13596-51-5, **Cobalt lithium vanadium** oxide
(CoLiVO4) 21651-19-4, **Tin** oxide (SnO) 58500-40-6,
Tin silicate
RL: DEV (Device component use); USES (Uses)
(manufacture of **sheet**-like **battery anodes** of)
IT **12190-79-3**, **Cobalt lithium** oxide (CoLiO2)
RL: DEV (Device component use); USES (Uses)
(manufacture of **sheet**-like **battery cathodes**
of)

L69 ANSWER 64 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1993-095831 [12] WPIX
DNN N1993-073254 DNC C1993-042312
TI Plastics-supported metallic **foil** production - by vacuum
metallisation and electroplating of resin film.
DC A35 L03 M14 X16
IN CARIGNAN, C; ST-AMANT, G
PA (STAM-I) ST-AMANT G; (HYDR-N) HYDRO QUEBEC
CYC 20
PI EP 533575 A1 19930324 (199312)* FR 12p C23C028-02
R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE
CA 2051604 A 19930318 (199322) FR C25D005-56
JP 05195287 A 19930803 (199335) 8p C25D005-56
US 5423974 A 19950613 (199529) 9p C23C014-24
ADT EP 533575 A1 EP 1992-402561 19920917; CA 2051604 A CA 1991-2051604
19910917; JP 05195287 A JP 1992-290660 19920917; US 5423974 A Cont of US
1992-945893 19920917, US 1994-314522 19940919
PRAI CA 1991-2051604 19910917
REP 3.Jnl.Ref; EP 215557; JP 60216471; JP 61270167; JP 63310955; US 4231848;
US 4512855; US 4552626; US 4832983
IC ICM C23C014-24; C23C028-02; C25D005-56
ICS B32B015-08; C23C014-04; C23C014-20; C23C014-58; H01M004-84
AB EP 533575 A UPAB: 19931113
Production of metallic **foil**, comprising a metal-coated
non-conductive resin film, involves (a) vacuum metallising one or both
faces of the film to obtain a substrate with sufficient electrical
conductivity to allow uniform electrodeposition; and (b) electroplating
one or more metals onto the metallised surface to obtain a thin metallic
film with a metal thickness of 0.1-4 microns, the metallised substrate
being selected to be compatible and to facilitate the electroplating step,
and the resulting metallic **foil** being adherent and supported on
the plastic film.
A novel metallic **foil** comprises (a) an insulating synthetic
resin support film; (b) a vacuum metallised deposit on most of at least
one face of the film, leaving a non-metallised strip region; and (C) an
electrochemical deposit of increasing thickness from the
strip region to the opposite edge, the mean total thickness of the

metallised and **electrochemical deposits** being 0.1-4 microns.

ADVANTAGE - The process produces high quality metal films of precisely controlled thickness in a rapid and simple manner, allows selective metal coating and use of various metals and can be carried out in automatic machines since a plastic support is used.

3/12

Dwg.3/12

FS CPI EPI

FA AB; GI

MC CPI: A11-C04B1; A12-S06B; L03-H04A; M11-B05; M13-G
EPI: X16-B01F1; X16-E02

L69 ANSWER 65 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:493771 CAPLUS

DN 117:93771

ED Entered STN: 05 Sep 1992

TI Sealed planar **batteries**

IN Nakai, Kenji; Hironaka, Kensuke; Takabayashi, Hisaaki; Higashimoto, Koji

PA Shin-Kobe Electric Machinery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM H01M002-02
ICS H01M002-06; H01M002-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 04106865	A2	19920408	JP 1990-224968	19900827
PRAI JP 1990-224968		19900827		

AB The **batteries** have an **electrode**-separator stack covered with polymer films or **sheets**, which are multilayer **laminates** having ≥1 metal layers on the whole surface except the edge parts and ≥1 elec. conductive through holes in the laminar structure. Secondary **Li**/MnO2 **batteries** were sealed by the invention **laminates** comprising, from the **electrode** side out, vapor-**deposited** Al, thermally adhesive modified polyethylene, poly(vinylidene chloride), poly(ethylene terephthalate), and vapor-deposited Al layers. The **laminates** provided the flexible **batteries** reliable sealing.

ST **lithium** manganese dioxide **battery** sealing; aluminum polyethylene **laminate battery** sealing; polyvinylidene chloride **laminate battery** sealing; polyethylene terephthalate **laminate battery** sealing

IT **Batteries**, secondary
(**lithium**/manganese dioxide, sealing of, aluminum-coated polymer **laminates** for)

IT Seals (mechanical)
(of **lithium**/manganese dioxide **batteries**, aluminum-coated polymer **laminates** for)

IT 9002-85-1, Poly(vinylidene chloride) 9002-88-4, Polyethylene
25038-59-9, Poly(ethylene terephthalate), uses
RL: USES (Uses)
(**laminates** containing layers of, aluminum-coated, for sealing **lithium**/manganese dioxide **batteries**)
IT **7429-90-5**, Aluminum, uses
RL: USES (Uses)
(**laminates** containing vapor-deposited, polymer, for sealing **lithium**/manganese dioxide **batteries**)

L69 ANSWER 66 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:183529 CAPLUS
DN 116:183529
ED Entered STN: 03 May 1992
TI **Electrodeposition** of tantalum **coatings** on metallic substrates such as steel
IN Szklarski, Wojciech; Los, Przemyslaw; Bogacz, Aleksander; Josiak, Jerzy
PA Politechnika Wroclawska, Pol.; Akademia Medyczna, Wroclaw
SO Pol., 5 pp. Abstracted and indexed from the unexamined application.
CODEN: POXXA7
DT Patent
LA Polish
IC ICM C25D003-66
CC 72-8 (Electrochemistry)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI PL 153113	B1	19910329	PL 1987-269822	19871229
PRAI PL 1987-269822		19871229		

AB The **deposition** is carried out by **electrolysis** of molten salts containing Ta, **Li**, and K compds. A bath with composition LiF 20-27, KF 48-62, K2TaF7 10-30, K2NiI4 0.3-1.4 and NH4HF2 3-5 weight% was used. A Ta **foil**, in the shape of the plated substrate, was used as an **anode.** An atmospheric of neutral gas was maintained during the electrolysis. After finishing the process, the bath was cooled to the **crystallization** temperature Subsequently, the Ta-plated product was immersed above the bath and cooled under neutral gas to .apprx.370 K. Electrolysis was carried out at c.d. 0.05-0.06 A/cm and 1070-1200 K.
ST **titanium** electrodeposition metallic substrate
IT 1341-49-7, Ammonium hydrogen difluoride 7789-23-3, Potassium fluoride 7789-24-4, **Lithium** fluoride, uses 16924-00-8 140212-81-3
RL: USES (Uses)
(**electrodeposition** of tantalum on metallic substrates from baths containing)
IT 7440-25-7, Tantalum, uses
RL: PROC (Process)
(electrodeposition of, on metallic substrates, bath for)

L69 ANSWER 67 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1989-224715 [31] WPIX
TI Non-aqueous-electrolyte **battery** production - by **laminating** aluminium **foil** and separator **sheet** for

electrode unit, and placing on **lithium** plate in **cathode** can NoAbstract Dwg 1/2.

DC L03 X16
PA (SAOL) SANYO ELECTRIC CO
CYC 1
PI JP 01161666 A 19890626 (198931)* 4p
ADT JP 01161666 A JP 1987-320226 19871217
PRAI JP 1987-320226 19871217
IC H01M004-12
FS CPI EPI
FA NOAB; GI
MC CPI: L03-E01B8
EPI: X16-A02A; X16-E03

L69 ANSWER 68 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:26648 CAPLUS
DN 110:26648
ED Entered STN: 21 Jan 1989
TI **Lithium**-manganese dioxide **batteries**
IN Sasama, Hiroshi; Niso, Kiyoshi; Imaizumi, Masahiko; Iwamaru, Futayasu; Ikehata, Rokuro
PA Hitachi Maxell, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M006-16
ICS H01M004-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 63175349	A2	19880719	JP 1987-7355	19870114
PRAI JP 1987-7355		19870114		

AB **Li**-MnO2 **batteries** have an **anode** of a **Li plate** and an **electrochem.** alloyed **Li**-M alloy layer on the separator side, a MnO2 **cathodes** having a d. of 3.00-3.15 g/cm3, and a laminar separator of a microporous resin film on the **anode** side and a nonwoven cloth on the **cathode** side. M is Al, **Sn**, **Zn**, Pb, **Bi**, Si, **Sb**, and/or Mg. Thus, a mixture of MnO2 100, graphite flakes 10, and PTFE 1 part was pressed to obtain **cathode** pellets of d. = 2.80-3.20 g/cm3, which were used in **batteries** using **anodes** of a 0.2-mm-thick **Li** plate covered with a 0.005-mm-thick Al **foil**, separators of a microporous polypropylene film-nonwoven polypropylene cloth **laminate**, and a 1M LiClO4/2:1 (volume) propylene carbonate-MeOC2H4OMe electrolyte. After discharged through a 15-kΩ load for 270 h, **batteries** using the invention **cathodes** had higher closed-circuit voltage **V** (8-ms pulse discharge through a 5-kΩ load at -10°) than **batteries** using **cathodes** of higher or lower d., and all **batteries** had higher **V** than similar

batteries using **anodes** without the Al **foils.**

ST **lithium battery** laminar polypropylene separator; manganese dioxide **cathode** density **battery**

IT **Cathodes**
(**battery**, manganese dioxide, performance in relation to d. of)

IT **Batteries**, secondary
(separators, polypropylene film-nonwoven polypropylene cloth, laminar microporous)

IT **7439-93-2**, **Lithium**, uses and miscellaneous
RL: USES (Uses)
(**anodes**, with **lithium**-aluminum alloy layers on separator side, for **batteries**)

IT 1313-13-9, Manganese dioxide, uses and miscellaneous
RL: USES (Uses)
(**cathodes**, **lithium battery** performance in relation to d. of)

IT 9003-07-0, Polypropylene
RL: USES (Uses)
(separators from **laminates** of porous films and nonwoven cloth of, for **lithium**-manganese dioxide **batteries**)

L69 ANSWER 69 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:26649 CAPLUS
DN 110:26649
ED Entered STN: 21 Jan 1989
TI **Lithium batteries** with laminar separators
IN Sasama, Hiroshi; Miso, Kyoshi; Imaizumi, Masahiko; Okamoto, Osamu; Iwamaru, Futayasu
PA Hitachi Maxell, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M006-16
ICS H01M002-16; H01M004-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63175348	A2	19880719	JP 1987-7354	19870114

PRAI JP 1987-7354 19870114

AB The **batteries** have **anodes** of a **Li plate** and an **electrochem.** alloyed **Li**-M alloy layer on the separator side and laminar separators of a microporous resin film having pore size ≤0.3 μm on the **anode** side and a nonwoven cloth of 70-90 volume% porosity on the **cathode** side. M is Al, **Sn**, **Zn**, Pb, **Bi**, Si, **Sb**, and/or Mg. Thus, 25-μm porous polypropylene films having pores of 0.3-μm diameter were **laminated** with 350-μm nonwoven polypropylene cloth having 75 volume% porosity and maximum pore size 20 μm to form separators for **Li**-MnO2 **batteries** using

(lead **electrode**, for strongly adhered **plating** of **nickel**)

IT 116226-30-3P 116226-31-4P
RL: PREP (Preparation)
(preparation of)

L69 ANSWER 71 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:21099 CAPLUS
DN 106:21099
ED Entered STN: 24 Jan 1987
TI Protected **electrode** material and its forming
IN McLoughlin, Robert Hamilton; Park, George Barry; Cook, John Anthony
PA Raychem Ltd., UK
SO Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM H01M004-02
ICS H01M002-14; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 76
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 195684	A2	19860924	EP 1986-302097	19860321
	EP 195684	A3	19880113		
	EP 195684	B1	19910502		
	R: AT, BE, CH, DE, FR, GB, IT, LI, NL, SE				
	JP 61220272	A2	19860930	JP 1986-64662	19860320
	IL 78220	A1	19891215	IL 1986-78220	19860321
	CA 1274276	A1	19900918	CA 1986-504736	19860321
	AT 63181	E	19910515	AT 1986-302097	19860321
	US 4675258	A	19870623	US 1986-924122	19861030
PRAI	GB 1985-7510		19850322		
	US 1986-841914		19860320		
	EP 1986-302097		19860321		

AB The title material comprises a sensitive **electrode** material having a layer of protective material bonded to at least part of its surface by an adhesive which can be swollen by treatment with a liquid to increase the permeability of the adhesive to electrolyte, which is encountered by the protected **electrode** material when incorporated in an electrochem. device. Poly(ethylene oxide) (PEO) was extruded continuously on **Li foil** at 120-140° and passed between chilled nip rolls to produce a uniform 0.15-mm-thick coating. After irradiating the encapsulated **Li** to 15 Mrads with an electron beam at 25°, a layer of microporous polypropylene (Celgard 2400) was adhered to each side of the encapsulated **Li** by pressure **lamination** using nip rolls heated to 75°. Immersion of the resultant **laminate** into a 0.5M LiClO4 in 1:11 MeOC2H4OMe-propylene carbonate electrolyte caused the PEO to swell to a thickness of 0.5 mm without detachment of the polypropylene. The conductivity of

the PEO-polypropylene **coating** in the same **electrolyte** was 10-3/Ω-cm.

ST polypropylene polyethylene oxide **lithium anode**; **battery anode lithium** protection; elec cond polypropylene polyethylene oxide

IT Electric conductivity and conduction
(of poly(ethylene oxide)-polypropylene, on **lithium**, in organic electrolyte)

IT Coating materials
(poly(ethylene oxide)-polypropylene, on **lithium**, for **batteries**)

IT **Anodes**
(**battery**, **lithium**, forming of protected)

IT 9003-07-0, Polypropylene
RL: USES (Uses)
(**anodes** protected with, **lithium**, forming of, for **batteries**)

IT **7439-93-2**, **Lithium**, uses and miscellaneous
RL: USES (Uses)
(**anodes**, forming of protected, for **batteries**)

IT 25322-68-3, Poly(ethylene oxide)
RL: USES (Uses)
(crosslinked, **anodes** containing adhesive of, **lithium**, forming of protected, for **batteries**)

L69 ANSWER 72 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:549593 CAPLUS
DN 103:149593
ED Entered STN: 01 Nov 1985
TI Solid electrolyte **battery**
PA Hitachi Maxell, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM H01M002-02
ICS H01M006-18
CC 72-3 (Electrochemistry)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 60065442	A2	19850415	JP 1983-174592	19830920
PRAI JP 1983-174592		19830920		

AB In assembling a solid electrolyte **battery** using a **Li** or **Li** alloy **anode**, a solid electrolyte, a **cathode**, and a pair of **laminated** Al **foils** having an ionomer resin inner layer and a protective polymer outer layer, the **electrode** leads are **coated** with this ionomer and the **battery** is sealed tightly by fusing the ionomer along the lips of the Al **laminate** and on the **electrode** leads.

ST **battery lithium** solid electrolyte aluminum; sealing solid electrolyte **battery** ionomer

IT Ionomers
RL: USES (Uses)
(in sealing of solid electrolyte **battery**)
IT **Batteries**, primary
(**lithium**, solid-electrolyte)
IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(**anodes**, solid-electrolyte **battery**)
IT **7429-90-5**, uses and miscellaneous
RL: USES (Uses)
(in **batteries**, solid-electrolyte)

L69 ANSWER 73 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1985-045359 [08] WPIX
DNN N1985-033788
TI Compact **battery** powered appliance, e.g. calculator - has **lithium battery** cell made from leaves sealed inside plastic film conductor strips.
DC T01 V04 X16
IN HARA, K
PA (CASK) CASIO COMPUTER CO LTD
CYC 11
PI DE 3427287 A 19850214 (198508)* 37p
FR 2549982 A 19850201 (198511)
GB 2150324 A 19850626 (198526)
JP 60097697 A 19850531 (198528)
US 4670664 A 19870602 (198724)
JP 62271343 A 19871125 (198802)
DE 3427287 C 19880218 (198807)
GB 2150324 B 19880427 (198817)
US 4749875 A 19880607 (198825)
KR 8902040 B 19890608 (199018)
KR 8902331 B 19890630 (199020)
JP 06068862 A 19940311 (199415) H01M002-10
ADT DE 3427287 A DE 1984-3427287 19840724; GB 2150324 A GB 1984-18616 19840620; JP 60097697 A JP 1983-204707 19831102; US 4670664 A US 1984-632199 19840718; JP 62271343 A JP 1987-52210 19830726; GB 2150324 B GB 1984-18616 19840720; US 4749875 A US 1987-25017 19870312; JP 06068862 A JP 1991-206103 19831102
PRAI JP 1983-115661 19830726; JP 1983-204707 19831102; JP 1987-52210 19830726
IC G06F001-00; G06F015-20; G06G003-02; H01M002-20; H01M006-12; H05K005-02; H05K007-14
ICM H01M002-10
ICS G06F001-00; G06F015-20; G06G003-02; H01M002-20; H01M006-12; H05K005-02; H05K007-14
AB DE 3427287 A UPAB: 19930925
The device is made up of several punched plates (12,14,50) and covers (13,15) with a frame (11) separating the upper and lower assembly. A flexible substrate (20) has the calculator ICo (22) and discrete components (23) mounted on it and fits within the frame (A). A second area (B) retains the display (30) and a third (C) retains the

battery (60).

The **lithium battery** consists of extremely thin layers (40) to form the **plates** and **electrolyte.** The **battery** is heat sealed inside a plastic film (60) into which conductors (61) are set. Closing the seal forces the conductors into intimate contact with the cell surface, allowing power to be transferred to the flexible substrate.

USE - For calculator.

2/14

FS EPI
FA AB
MC EPI: T01-J01; V04-S09; X16-F01; X16-F03

L69 ANSWER 74 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:62083 CAPLUS
DN 98:62083
ED Entered STN: 12 May 1984
TI **Lithium** solid electrolyte **battery**
PA Toshiba Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC H01M006-18
CC 72-3 (Electrochemistry)
Section cross-reference(s): 52
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 57154773	A2	19820924	JP 1981-39597	19810320
PRAI JP 1981-39597		19810320		

AB In fabricating a **laminated Li** solid **electrolyte battery** by successively **depositing** on a **cathode** metal **sheet** a **cathode** active material layer, a Li3N solid electrolyte layer, a **Li anode** layer, and a metal **anode** plate, the **laminate** is coated with a thermally-shrinkable plastic film so that the centers of the **electrode plates** are left exposed.

ST **battery lithium** solid electrolyte; **lithium** nitride solid electrolyte **battery**

IT **Batteries**, primary
(**lithium**, solid-electrolyte)

IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(**anodes**, in solid-electrolyte **batteries**)

IT 26134-62-3
RL: PRP (Properties)
(**lithium battery** solid electrolyte)

L69 ANSWER 75 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1982-52382E [25] WPIX

CR 1980-55191C [31]
TI **Lithium electrode** - with **lithium** **coating** and pressed **lithium** pieces on collector.
DC E34 L03 X16
IN ATHEARN, L F
PA (MEDT) MEDTRONIC INC
CYC 1
PI US 4333997 A 19820608 (198225)* 5p
PRAI US 1979-20809 19790315; US 1979-68872 19790822; US 1980-182650 19800829
IC H01M004-40
AB US 4333997 A UPAB: 19930915
Li electrode comprises a collector body alternately overlaid with **Li** in two forms, one comprising an **Li** coating, pref. hot dipped, and the other comprising pressed **Li** pieces, pref. **Li foil laminations.** Either the hot dipped coating or the **Li** pressed pieces may be carried directly on the collector, with the pressed pieces or coating respectively forming the outer surface of the **electrode.** An electrical lead is pref. attached to the collector. This specification is a div. ex. US4292346, which is a div. ex. US4212930, which discloses an **anode** subassembly having a collector, lead and feedthrough coated with **Li.**

The **electrode** is useful in **Li**-halogen **batteries.** The **Li** coating minimises the chance of delamination of pressed **Li** pieces, and protects the collector in the event of such delamination.

2
FS CPI EPI
FA AB
MC CPI: E31-B03; L03-E01B
EPI: X16-E01; X16-E03

L69 ANSWER 76 OF 78 WPIX COPYRIGHT 2004 THOMSON DERWENT on STN
AN 1981-66630D [37] WPIX
TI Solid electrolyte storage **battery** - has negative **electrode** activator of **lithium** (alloy) and **lithium** nitride electrolyte for increased discharge capacitance.
DC A85 L03
PA (CITL) CITIZEN WATCH CO LTD
CYC 1
PI JP 56091374 A 19810724 (198137)* 4p
PRAI JP 1979-167538 19791225
IC H01M004-58; H01M006-18
AB JP 56091374 A UPAB: 19930915
The **battery** comprises a negative **electrode** activator of **Li** (alloy), a solid electrolyte of **Li** nitride (Li3N) and a positive **electrode** activator of a nitride of transition metal. The solid **electrolyte** is **deposited** on the negative **electrode** by vacuum **deposition** or sputtering.

The **lithium** nitride electrolyte increases a discharge

capacitance and the **battery** has a long life-time. In an example a **Li foil** of 100 micrometres thickness is placed on a **Ni foil** of 50 micrometres thickness and pressed in Ar gas. The Li3N is sputtered on the **Li foil** to form the electrolyte layer of 0.5-5 micrometres thickness. Then VN is sputtered on the electrolyte layer to form the positive **electrode** of 70 micrometres thickness.

A collector of **Ni** is formed on the VN layer. The **Ni** collector is covered by a polytetrafluoroethylene layer. The **laminated** layers are placed in a case.

FS CPI
FA AB
MC CPI: A12-E06; L03-E02

L69 ANSWER 77 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1975:582053 CAPLUS
DN 83:182053
ED Entered STN: 12 May 1984
TI **Cathode** for thin and **laminated batteries**
IN Iijima, Takashi; Nishino, Atsushi
PA Matsushita Electric Industrial Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
NCL 57B203
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 50045926	A2	19750424	JP 1973-97607	19730829
	JP 54009694	B4	19790426		
PRAI	JP 1973-97607		19730829		

AB **Cathodes** for **batteries** are obtained by electrodepositing a MnO2 layer on a current collector. The packing d. of the MnO2 active mass is increased to give a **battery** with increased capacity. Thus, a **Ti** [**7440-32-6**] **sheet** (0.05-mm thick and covered on 1 side with a protective film) was electrodeposited with MnO2 in a bath containing MnCl2 1.5 and HCl 0.5 mole/l. at 95°, 2.5 A/dm2 and 2.3 **V** for 15 hr. After water washing, the **sheet** was cut (20 + 20 mm) and the protective film was peeled off. A **battery** comprising this **cathode**, a **Li** [**7439-93-2**] **sheet anode**, and a LiBF4 [14283-07-9] - y-butyrolactone (1 mole/l.) electrolyte showed a flat discharge curve (voltage vs. discharge time) for a time by a factor of 2 greater than that of a **battery** with a molded powdered MnO2 - graphite **cathode.**

ST electrodeposition manganese dioxide **cathode**
IT Electrolytic depolarizers
(**battery**, manganese dioxide, **titanium** coated with)
IT **Cathodes**
(**battery**, manganese dioxide-coated **titanium**)

IT **7439-93-2**, uses and miscellaneous
RL: USES (Uses)
(**anodes**, in organic-**electrolyte battery** with manganese dioxide-**coated titanium**)
IT 14283-07-9
RL: USES (Uses)
(**battery** electrolyte containing)
IT **7440-32-6**, uses and miscellaneous
RL: USES (Uses)
(**cathodes** from manganese dioxide-coated, **laminated battery**)

L69 ANSWER 78 OF 78 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1964:66165 CAPLUS
DN 60:66165
OREF 60:11619b-d
ED Entered STN: 22 Apr 2001
TI **Electrocrystallization** of compact **deposits**
AU Lindau, J.; Sauerwald, F.
CS Univ. Halle-Wittenberg, Germany
SO Metalloberflaeche (1963), 17(12), 357-62
CODEN: MOFEAV; ISSN: 0026-0797
DT Journal
LA Unavailable
CC 15 (Electrochemistry)
AB Deposition of **Fe** was first tried on a liquid Pb (99.985% purity) **cathode** in a fused FeCl3-NaCl electrolyte (54 mol. % FeCl3-46 mol. % NaCl) and in FeCl2-KCl-LiCl electrolyte (58.3 mol. % LiCl-41.7 mol. % KCl) with a **sheet anode** of **Fe.** In the first bath **Fe** deposited as black, spongy powder which did not adhere well and mainly dissolved with hot H2O. In the second bath, **Fe** deposited in 1-mm. incoherent, shiny **crystals.** Compact deposits were obtained on solid 1-cm. **sheet Fe** in the FeCl2-KCl-LiCl electrolyte. Deposition of **Cu** was carried out on solid 1-cm.-wide **Cu** strips in a CuCl-NaCl mixture (77 mol. % CuCl, 23 mol. % NaCl) and in a mixture of low CuCl concentration in the temperature range of spontaneous **crystallization** and at lower temps. The **cathode** was covered with dendrites in each case. No compact deposit was obtained. Different temps. had no effect on the deposit. Deposition of **Ag** was carried out on **Ag** and **Fe** stationary **cathode**, and on **Ag** and **Fe** rotating **cathodes** with or without scraping device from AlBr3-AgBr electrolytes. Both d.c. and asymmetric a.c. were used. The **anodes** were made of **Ag.** Compact, fine-grained coatings were obtained.
IT **7440-50-8**, **Copper**
(electrodeposition or electroplating of, from CuCl-NaCl baths)
IT **7440-22-4**, **Silver**
(electrodeposition or electroplating, from AlBr3-AgBr electrolytes)
IT **7439-89-6**, **Iron**
(electrodeposition or electroplating, from fused FeCl3-NaCl and

FeCl2-KCl-LiCl electrolytes)
IT 7447-41-8, **Lithium** chloride
(**iron electrodeposition** from baths containing FeCl2, KCl and)
IT 7447-40-7, Potassium chloride
(**iron** electrodeposition from baths containing FeCl2, LiCl and)
IT 7758-94-3, **Iron** chloride, FeCl2
(**iron** electrodeposition from baths containing LiCl, KCl and)

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